

**The Budget of the
Environmental Protection Agency:
An Overview of Selected Proposals for 1985**

Special Study

April 1984

CONGRESS OF THE UNITED STATES



CONGRESSIONAL BUDGET OFFICE

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NOTES

All dates except those used in an historical context or as explicitly noted indicate fiscal years.

Monetary figures are expressed in various types of dollars, all explicitly identified.

PREFACE

This paper analyzes the Environmental Protection Agency's 1985 budget request for five programs: water quality, air quality, toxic substances, hazardous waste, and Superfund. The study was prepared at the request of Senators Patrick Leahy and Slade Gorton, and Representatives Howard Wolpe and Claudine Schneider. The Congressional Budget Office prepared comparable analyses of the budgets proposed for the EPA for fiscal years 1983 and 1984. In keeping with the Congressional Budget Office's mandate to provide objective and impartial analysis, the paper offers no recommendations.

The paper was written by Dan Carol, Ken Rubin, and John Thomasian of CBO's Natural Resources and Commerce Division, under the direction of David L. Bodde, Everett M. Ehrlich, and John B. Thomasian. Lori Godfrey and Kristen Hughes provided valuable assistance. For useful comments in review drafts, the authors also would like to thank Deborah Reis of CBO's Budget Analysis Division, Ed Kramer and Vincette Goerl of the Environmental Protection Agency, John McCormick of the Environmental Policy Institute, Tom Curtis of the National Governors Association, and Martin Lee of the Congressional Research Service. Johanna Zacharias edited the manuscript, and Deborah Dove prepared it for publication. Andy Hemstreet drafted the figures.

Rudolph G. Penner
Director

April 1984

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A brief summary of the budgetary analysis in the five EPA program areas studied is provided at the opening of Chapters II-VI.

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CHAPTER I. INTRODUCTION AND SUMMARY

In his budgetary submission for fiscal year 1985, President Reagan requested a funding level of \$4.25 billion (in nominal dollars) for the Environmental Protection Agency (EPA). Of that sum, roughly \$2.4 billion (in nominal dollars) is slated for public sewage treatment facility grants (the construction grants program), \$0.64 billion for emergency hazardous waste cleanup (the Superfund), and \$1.2 billion for agency operating expenses. Of the operating expenses, 56 percent, or \$0.67 billion (in nominal dollars), is to be divided among the EPA's four key environmental protection programs: air quality, water quality, hazardous and solid waste, and toxic substances. Another 23 percent of the operating budget goes toward agency management and support, while the remaining 21 percent is divided among various control programs, including radiation, noise, pesticides, energy, and "interdisciplinary activities" (the latter involving research efforts common to several programs). This paper presents a brief overview of each of these four EPA operating programs and the Superfund, and a comparative analysis of their funding in 1984 and 1985. The operating costs considered include agency salaries and expenses, and extramural funds--monies distributed outside the agency. (The President's request of \$2.4 billion in grants to states for construction of public sewage treatment facilities is examined separately in an appendix to this paper.)

THE 1985 BUDGET REQUEST

The President's 1985 budget request of \$671 million for the EPA's four "media" programs represents a 5 percent nominal increase over 1984 levels, but when inflation is taken into account, funding is unchanged from the 1984 funding levels (see Table 1). Moreover, it remains a substantial 41 percent lower in real terms from peak funding of \$1.04 billion in 1980.

Separately, between 1984 and 1985, real funding (corrected for inflation) for the water and air quality programs would decline by 4 percent and 3 percent, respectively, while real funding for the hazardous waste and toxics programs would rise by 6 percent and 11 percent, respectively. Combined employment in all four programs would rise by 9 percent over the 1984 level, with no individual program experiencing a reduction. The Superfund program will receive a 33 percent real increase in funding and a 24 percent increase in staff.

TABLE 1. FOUR EPA OPERATING PROGRAMS IN 1984 and 1985,
BUDGET AUTHORITY in millions of nominal and constant dollars
AND STAFFING LEVELS in numbers of full-time positions

Program	1984 (Current Appropriations)		1985 (President's Request)		Percent Change	
BUDGET AUTHORITY						
	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>
Air Quality	225	214	229	208	+2	-3
Water Quality	216	206	218	198	+1	-4
Hazardous Waste	129	123	143	131	+11	+6
Toxic Substances	<u>69</u>	<u>66</u>	<u>80</u>	<u>72</u>	<u>+16</u>	<u>+11</u>
Total	638	609	671	609	+5	0

STAFFING LEVELS						
Air Quality	1,464		1,592		+9	
Water Quality	1,792		1,903		+6	
Hazardous Waste	800		887		+11	
Toxic Substances	<u>633</u>		<u>740</u>		<u>+17</u>	
Total	4,689		5,122		+9	

SOURCE: Congressional Budget Office, based on data obtained from the Environmental Protection Agency.

NOTES: Nominal dollars (ND) not adjusted for inflation. Constant dollars (CD) are adjusted for inflation and represent 1983 dollar values. Details may not add to totals because of rounding. Percent changes were calculated before rounding and may not agree with rounded budget figures shown.

Activities and Changes in Emphasis

Within each of the operating programs, the EPA supports three different types of activities:

- o **Enforcement**, devoted primarily to monitoring compliance and applying legal action when necessary;
- o **Research and development (R&D)**, devoted to providing data for standards prior to promulgation, developing new technologies to abate pollution, and supporting basic research on overall environmental processes and effects; and
- o **Abatement and control**, devoted primarily to developing and promulgating standards, and to providing assistance to states for their environmental programs.

Funding within each of the operating programs is divided among these categories and further divided among the supporting activities within each.

Three changes distinguish the EPA's 1985 funding request from its 1984 budget: a major increase in funding for enforcement (10 percent in real terms), a small rise in R&D funding (a 2 percent real increase), and reductions for pollution abatement and control primarily involving resource assistance (grants) to states. Table 2 shows these changes (see also Appendix A).

Enforcement. An increased emphasis on enforcement is perhaps the most significant aspect of the 1985 request. In addition to the 10 percent real rise in funds, employment in enforcement would also rise by 12 percent--more than in either abatement and control or R&D. New emphasis on enforcement is a major theme running through all programs except air quality, in which it falls slightly (5 percent in real terms). For the newer programs--hazardous wastes and toxic substances--enforcement receives the greatest increase in funds (40 percent and 42 percent in real terms, respectively). Overall, these newer programs will receive greater emphasis within the EPA budget (see Figure 1).

Much of this increase reflects a basic shift in emphasis, from the early mandate to publish the initial regulations, to the current need to enforce them. A similar shift occurred between 1978 and 1981, when the enforcement budget rose 8 percent in real terms, as the air and water quality programs were devoting greater resources to enforcing new regulations. After 1981, the federal enforcement activities for these programs declined, as the states assumed greater program responsibility. Accordingly, the

TABLE 2. TRENDS IN THREE KEY ACTIVITIES IN THE EPA BUDGET IN 1984 AND 1984 FOR AIR QUALITY, WATER QUALITY, HAZARDOUS WASTE, AND TOXIC SUBSTANCES, BUDGET AUTHORITY in millions of nominal and constant dollars AND STAFFING LEVELS in numbers of full-time positions

Activity	1984 (Current Appropriations)		1985 (President's Request)		Percent Change	
BUDGET AUTHORITY						
	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>
Abatement and Control	434	414	446	406	+3	-2
Enforcement	61	58	70	63	+15	+10
Research and Development	<u>143</u>	<u>137</u>	<u>154</u>	<u>140</u>	<u>+8</u>	<u>+2</u>
Total	638	609	671	609	+5	0

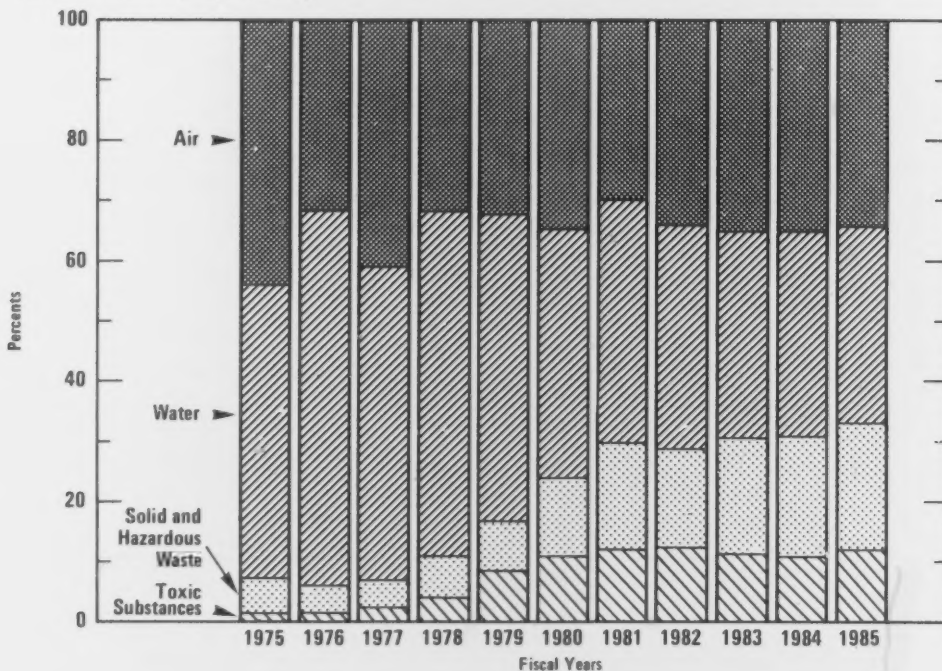
STAFFING LEVELS						
Abatement and Control	2,627		2,836		+8	
Enforcement	1,183		1,324		+12	
Research and Development	<u>879</u>		<u>962</u>		<u>+9</u>	
Total	4,689		5,122		+9	

SOURCE: Congressional Budget Office, based on data obtained from the Environmental Protection Agency.

NOTES: Nominal dollars (ND) not adjusted for inflation. Constant dollars (CD) are adjusted for inflation and represent 1983 dollar values. Details may not add to totals because of rounding. Percent changes were calculated before rounding and may not agree with rounded budget figures shown.

Figure 1.

Allocation of EPA Resources Among Four Operating Programs,
1975-1985 (In percents)



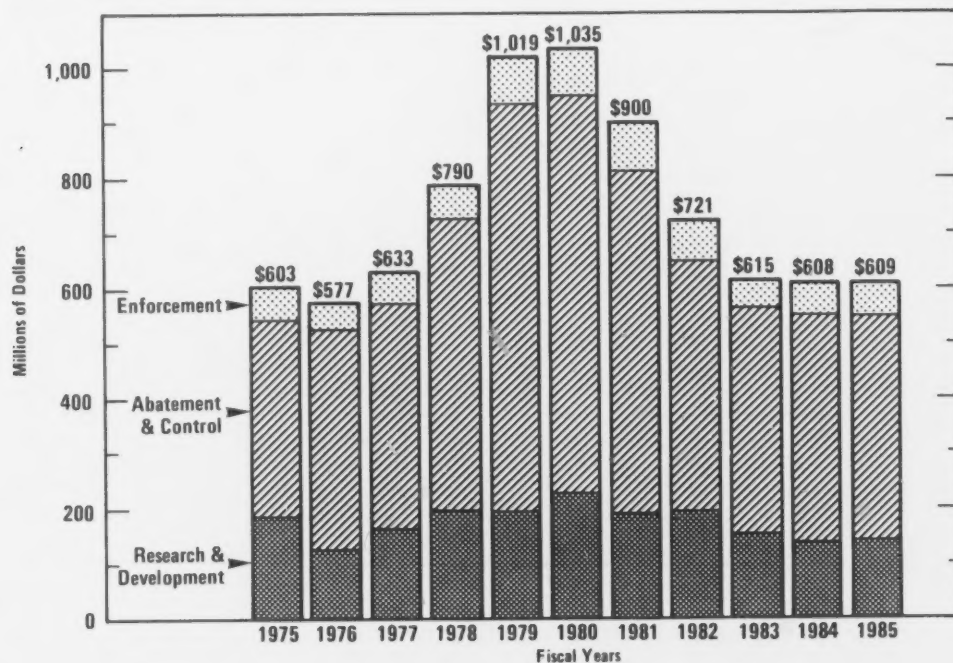
SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

EPA's overall enforcement budget fell 28 percent between 1981 and 1984. Figure 2 shows these relative changes over time.

Research and Development. Another feature of the 1985 request--a 2 percent real increase for R&D--halts the recent slide in funding for these activities, particularly in the area of extramural long-term research (research conducted with EPA funds outside the agency in independent laboratories). The EPA's peak funding for R&D reached \$223 million in 1980 and fell to a low of \$137 million in 1984 (all in 1983 dollars), a decrease of roughly 39 percent in real terms. Most reductions occurred in the extramural portion of R&D funds rather than in agency salaries and

Figure 2.
Major Activity Funding Levels for Four EPA Programs
(In millions of 1983 dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

expenses. While salaries and expenses fell by 25 percent in real terms between 1980 and 1984, extramural grant monies fell by more than 45 percent in real terms during the same period.

By reducing its extramural funding, the EPA curtailed its support of research at universities and other private-sector institutions that conduct long-term study of the basic nature of pollution, its sources, effects, and possible controls. Instead, the EPA emphasized in-house research activities, which are largely devoted to translating information from completed scientific studies into support for upcoming standards. In fact, agency-wide real funding for scientific assessment activities (R&D staff and expenses)

have actually risen 60 percent since 1980.^{1/} Critics of this shift have argued that curtailing long-term extramural research diminishes the ability of the EPA to anticipate future problems. But on the other hand, the EPA has viewed scientific evaluation as critical to developing standards needed to address current issues and meet statutes. In fact, the EPA has been quite explicit on this point: more emphasis on scientific assessment, it stated, was needed to meet all the regulatory milestones mandated by law. Long-term research, according to this view, could be reduced without affecting these statutory needs.

Thus, the proposed 2 percent real increase for R&D in 1985 would essentially continue 1984 levels for extramural funding. The agency has apparently balanced its R&D funds between agency staff and outside institutions, and it is now trying to establish a stable extramural research program, although with a markedly lower level of support than in previous years.

State Grants. A third aspect of the 1985 budget request--reduced resource assistance to states (state grants)--has been a concern for several years. As Figure 2 shows, abatement and control has borne the brunt of most budget cuts over the years, with funding (in 1983 dollars) falling from \$744 million in 1979 to \$406 million in 1985, a 45 percent real decrease. One of the largest single items cut in abatement and control is state grants--money passed to the states through each of the four operating programs to help pay for development and operation of state-run programs. In 1975, state grants totaled \$446 million (in 1983 dollars). The 1985 request, in comparison, calls for a total of only \$175 million (also in 1983 dollars), 61 percent less in real terms but only 5 percent less than in 1984. These decreases remain an issue, although they may be less problematic than they have been in the past.

Starting in 1980, state grants from the EPA fell sharply, dropping by one-third (in real terms) between 1980 and 1984. This reduction was driven by the EPA's conviction that states should assume a greater share of environmental program costs. At the same time, however, the states began to face their own financial strains, as the economy headed into recession. Moreover, the states had little time to plan alternative funding mechanisms, such as charging permit fees--at the time prohibited by many state constitutions--to make up for lost federal assistance. For these reasons, most states reported that they were unable to make up the roughly 20

1. See Congressional Budget Office, Research and Development Funding in the Proposed Fiscal Year 1985 Budget (March 1984).

percent real reduction in federal support that occurred from 1981 to 1982, and performance of local environmental programs (including timely processing of permits) suffered in some instances.

Starting in 1983, however, the states' financial situation began to improve. At the end of 1983, the combined balance of state budgets showed a surplus in excess of \$10 billion, although some states are still experiencing deficits. Perhaps more important, sufficient time has passed to develop alternative local revenue measures from which to supplement state programs. Thus, the continued reductions in federal assistance, now less drastic, may pose less of a problem than in the past, but only if one assumes that the states have responded properly and their present financial good fortunes will continue.^{2/} Nevertheless, the continued reduction in state grant money represents a significant change from past policies in which the federal government provided a large share of state program support. For the newer federal programs--such as hazardous waste management and Superfund activities--these cuts may impede program development.

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2. Whether the states can absorb further reductions in federal support is a subject of major uncertainty. Most notably, the National Governor's Association (NGA) believes that states' financial good fortunes are already waning, and revenue from environmental permit fees often are not available for the state environmental programs. Joan Warren and Tom Curtis of the NGA wrote to CBO that, "... state budgets are not in a position to absorb additional cuts in federal support. Preliminary fiscal survey figures show that state balances in FY 84 and FY 85 will continue to fall well below balances at the start of the decade. The total 50 state aggregate balance in FY 84 is estimated to be approximately \$3 billion, or less than 2 percent of state expenditures. Only nine states expect FY 85 balances at or above the 5 percent of expenditures considered prudent by Wall Street." Moreover, they assert, "Permit fees can account for only a small part of environmental program funding. In the majority of states that collect permit fees for environmental programs, the revenues are deposited in the general fund.... According to a 1982 study of state environmental programs conducted by NGA, about 21 states and territories charge for air quality permits, but in only 10 are the funds available to the permitting agency. While 22 states and territories have water quality permit fees, only 9 states make them available to the permitting agency; and only 7 hazardous waste agencies collect and keep permit fees even though 18 agencies collect them."

METHOD USED IN THIS ANALYSIS

To obtain historic and current budgetary data, the Congressional Budget Office used the EPA Appropriations Justification documents submitted for fiscal years 1977 to 1985. ^{3/} Figures from 1975 to 1983 reflect actual obligations, while figures for 1984 and 1985 represent anticipated budget authority. ^{4/} While obligations and budget authority may differ in any given year--depending on amounts carried over from a previous year and deferred to the next--they are comparable in most of the EPA's operating programs; in fact, actual obligations for the four major operating programs since 1977 have been within 3 percent of program budget authority for all programs.

Throughout the paper, budget levels are cited in terms of either nominal dollars, which are not adjusted for inflation, or constant (also termed "real") 1983 dollars, which are adjusted for inflation. Percent changes from year to year, however, are expressed in real terms. To convert nominal dollars into constant 1983 dollars, the CBO used historical and projected gross national product (GNP) deflators consistent with those reported in the President's Annual Report and the forecast contained in CBO's February 1984 economic report. ^{5/} (The one exception concerns construction grants, for which figures were adjusted back to 1975 using the Engineering News Record construction index and adjusted forward to 1985 using the appropriate construction index contained in the CBO forecasting model.) ^{6/} Supporting data are provided in Appendixes A through C.

3. Construction grant outlay figures for 1975 to 1983 were obtained from Environmental Protection Agency, Office of Administration, Activities of the Grants Assistance Programs (October 1983).
4. Budget authority allows the agency to enter into obligations that will result in immediate or future outlays involving federal government funds, but it does not include authority to ensure or guarantee the repayment of indebtedness. The basic forms of budget authority are appropriations, authority to borrow, and contract authority. Obligations indicate the amounts of orders placed, contracts awarded, services received, and similar transactions during a given period that require payments during the same or a future period. Such amounts include outlays for which obligations had not been previously recorded and actual outlays to liquidate those obligations.
5. See Congressional Budget Office, The Economic Outlook (February 1984), and Baseline Budget Projections for Fiscal Years 1985-1989 (February 1984).
6. See Engineering News Record (1984), Construction Cost Index.

CHAPTER II. AIR QUALITY

The Budget Prospect in Brief. Among the four EPA operating programs considered in this study, the program for air quality will be the agency's largest undertaking in 1985 and will retain its current emphasis on developing standards for specific pollutants from both mobile and stationary emissions sources. If the President's budgetary proposal is adopted, total funding for air quality will remain at roughly the same level as last year's appropriation, from \$225 million (not adjusted for inflation) in 1984 to \$229 million in 1985. (Air quality budget data are displayed in Table 3 on page 17.) But when adjusted for inflation, these changes will actually represent a 3 percent drop from last year's funding. At the same time, however, EPA air quality staff levels will rise from 1,464 full-time positions to 1,592. The EPA's allocation of its air quality funding will shift slightly. The enforcement area will experience a 5 percent real decrease, and abatement and control activities a 4 percent real decrease. Research and development, however, will remain constant in real terms. States receiving EPA grants for abatement and control will receive real funding losses, as they did in 1981 and 1982. The current general economic recovery, in combination with new state measures to increase resources for air pollution control, however, suggest that many states are in better financial condition to undertake increased environmental responsibility on their own. Nonetheless, the continued drop in federal support remains an important issue in states' air quality program operations.

DEVELOPMENT OF THE CURRENT CONGRESSIONAL MANDATE

Air pollution became a major focus of public attention in the late 1940s and early 1950s, when smog in broad areas and isolated episodes of visible air contamination in industrial urban areas aroused widespread concern. By 1968, interest in preventing damage to health and property thought to result from degraded air quality finally led to passage of the first major control legislation, the Clean Air Act. Over nearly two decades, federal law with respect to air pollution has evolved a dual focus: protection of health and welfare through federally adopted standards, and assurance of the development and maintenance of state air pollution control programs to carry out both federal and local regulations.

The Clean Air Act Amendments of 1970, the immediate forerunner of current law, provided for development and enforcement of two kinds of

standards for ambient air quality: **primary standards**, designed to protect health, and **secondary standards**, to protect both health and other aspects of public welfare, such as structures and property. With these categories in mind, the EPA promulgated national ambient air quality standards (NAAQS) for six major classes of so-called "criterion" pollutants: particulate matter, sulfur oxides, hydrocarbons, carbon monoxide, oxides of nitrogen, and photochemical oxidants (such as ozone). States were to develop their own implementation plans for the EPA's approval, setting forth how they intended to achieve the national standards. ¹/ The primary standards were to be achieved by 1975; secondary standards were to be achieved within a "reasonable time period."

The NAAQS, as the term implies, were to be implemented uniformly throughout the country, but the state-set emissions limits intended to help attain these standards were allowed to vary. The 1970 act also required that minimum national emissions standards be promulgated for newly built "stationary" sources (such as utility power plants). Under these so-called new source performance standards (NSPS), states could enact tougher limits for these new pollution sources, but not more lenient ones. The NSPS set emissions limits for specific categories of new pollution sources, such as utility plants and industrial boilers, and pollutants for which NAAQS have been set, such as carbon monoxide and lead. (A "hazardous pollutants" program develops emissions limits covering specific plants and pollutants found to be hazardous, but not covered by national ambient standards.) The federal NSPS were to be promulgated starting in 1971 for specific categories of polluters and revised every four years thereafter.

Current law, embodied in amendments enacted in August 1977, has changed some practices regarding both the NAAQS and the NSPS. By 31 December 1980 and at five-year intervals thereafter, the EPA was required to make a thorough review of the NAAQS; the 1970 law had required a review only "from time to time." The 1977 act also required the EPA to promulgate, by August 1978, a new list of major stationary-source categories and to promulgate NSPS for these categories by August 1982.

The 1977 amendments also made significant changes in the required emissions control pertaining to "mobile sources" (cars, trucks, and so forth). Deadlines for reduced emissions from motor vehicles, which had been required by 1970 law, were postponed. (These same deadlines had already

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1. For further information on the NAAQS and related provisions, see Congressional Budget Office, The Clean Air Act, The Electric Utilities, and the Coal Market (April 1982), Chapter II.

been postponed for one year by the Energy Supply and Environmental Coordination Act of 1974.)

Under "prevention of significant deterioration" (PSD) provisions, the 1977 amendments sought to maintain good air quality in areas with air already cleaner than national standards required. Other provisions--namely, the NAAQS--applied to those areas that failed to meet national standards. The PSD program identified clean air regions and divided them into three classes, allowing the amount of permissible air quality deterioration to vary among classes. Conversely, for areas failing to meet the NAAQS, the 1977 amendments delayed the required date for attainment of primary standards to 1982 for some pollutants, and to 1987 for others. In such "nonattainment" areas, new pollution sources were required to attain a "lowest achievable emission rate" standard, defined as the most stringent emission standard contained in any state plan for that category of source, or the most stringent emission limit achievable in practice, whichever was lower.

In 1978, a seventh pollutant, lead, was added to the list of regulated pollutants under the NAAQS. In the following year, a revised standard for ozone was set forth, but in 1981, the standard for hydrocarbon was revoked. As of this writing, work continues on possible revisions to the standards.

In 1983, the EPA devoted substantial effort to eliminating the backlog of unprocessed state implementation plans and to developing plans for areas that did not meet the December 1982 deadline for the NAAQS. In August 1979, the EPA released a list of 64 categories and subcategories of major new stationary sources subject to NSPS, which the 1977 amendments had required by August 1978. In the interim, approximately 12 source categories had been deleted, usually because the categories were expected to show only limited emissions growth. At the end of 1982, the EPA had covered 46 source categories with NSPS. In 1983, the agency proposed nine new standards and promulgated 12 others, including four revisions.

Beyond the six pollutants (including lead) for which NAAQS have been assigned, seven substances (asbestos, mercury, beryllium, vinyl chloride, benzene, radionuclides, and arsenic) have been listed by the EPA as hazardous.^{2/} The EPA does not set atmospheric standards for these pollutants, but instead promulgates emission limits covering their emissions from specific categories of new and old sources. Standards have been promulgated for four of the pollutants listed (asbestos, beryllium, mercury, and vinyl chloride), and the EPA proposed four forms of benzene and three forms of arsenic hazardous emissions standards in 1983.

2. Under Section 112 of the act as amended in 1977.

Program Accomplishments and Future Direction

Over the last decade, new laws, regulations, procedures, and policies on air pollution controls have contributed to a noticeable gain in air quality. In most urban areas, air quality has improved; elsewhere, it has at least remained stable in most cases. For the major pollutants (except ozone and nitrogen dioxide), trends are encouraging: for each person, the average annual exposure to most pollutants has fallen since the early 1970s. Nevertheless, substandard air quality still envelopes some cities, and worsened air pollution still threatens some areas of the country.

According to the EPA, enforcement and cleanup efforts improved in 1983. Approximately 90 percent of the more than 18,000 major stationary sources have achieved compliance with all applicable emissions limits. Another 2.4 percent are meeting acceptable compliance schedules. In 1985, the EPA hopes to ensure that remaining sources come into compliance with present standards or with any new or revised standards.

Future Direction. The EPA must, under the law, continue its revision of the NAAQS and complete issuance of emissions standards. (As noted above, the 1977 amendments required the EPA to complete its review of the NAAQS by 31 December 1980 and to review these standards every five years thereafter.) Of the seven standards to be reviewed, however, the EPA has completed only two--the ozone standard has been revised, and the hydrocarbon standard revoked. The EPA's current schedule calls for promulgation of carbon monoxide and nitrogen dioxide standards in 1984, and proposal of particulate matter and sulfur dioxide standards in the same year. The agency expects to promulgate these latter two standards in 1985.

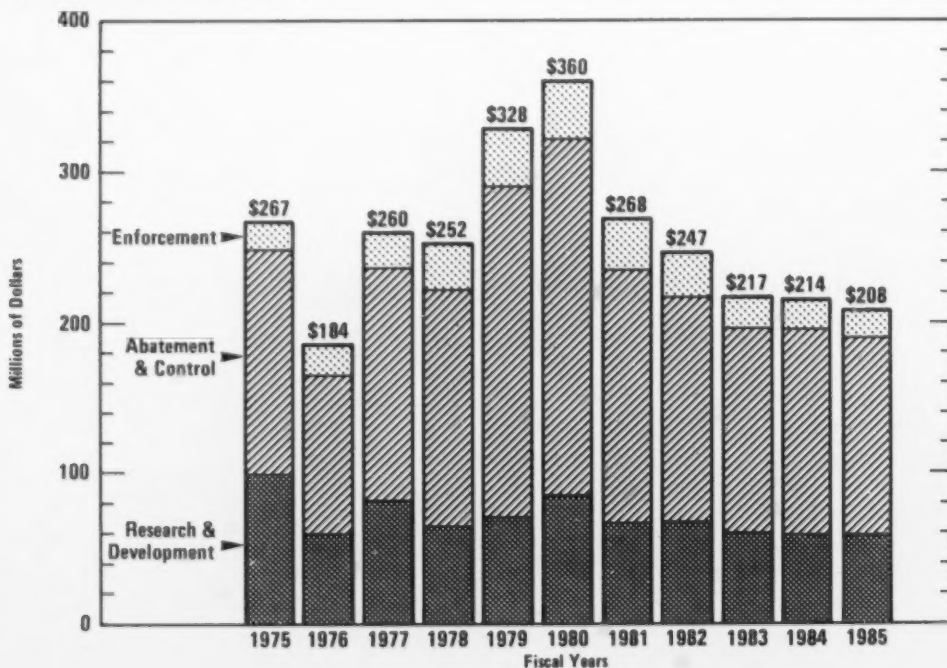
Though the EPA has made progress in promulgating the NSPS for the 64 types of sources listed in 1979, the 1982 deadline has not been met. The agency plans to continue efforts in this area for 1984 and 1985 and to complete its requirement. The seven hazardous substances listed are in a similar situation, with no standards promulgated for three--benzene, arsenic, and radionuclides. Four separate benzene standards covering different emissions sources have been proposed, with another likely during the course of this year. Standards are being developed for radionuclides, but none have been proposed. Standards for arsenic have also been proposed.

BUDGETARY HISTORY

In real terms, trends in EPA spending for air quality--the agency's largest program--show the influence of major regulatory deadlines' needing substantial resources. Between 1975 and 1977, annual funding declined

somewhat, as the original 1970 requirements of the act had largely been met and the law awaited revision. The amendments of 1977, however, established several significant new regulatory milestones. By 1979, all states had to produce adequate and enforceable implementation plans to achieve the NAAQS for all pollutants, except carbon monoxide and oxidants. This significantly increased the EPA's workload to help develop guidelines for use in the development of state implementation plans (SIPs) and to review SIPs as they were completed. Thus, EPA funding rose rapidly after 1977. Over the 1977-1980 period, as the SIPs and new agency regulations took effect, the relative share of the EPA's budget devoted to enforcement also rose (see Figure 3).

Figure 3.
EPA Funding for the Air Quality Program, 1975-1985
(In millions of 1983 dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

Total real funding for air quality reached a peak of \$360 million (in 1983 dollars) in 1980, as several programs--review and enforcement of SIPs and preparation of guidelines for the 1982 SIPs for carbon monoxide and oxidants--took shape or reached completion. In 1981, however, funding fell dramatically to \$268 million (in 1983 dollars), with the enforcement program dropping by 14 percent and research and development by 21 percent (in real terms). Though some funding declines represented attainment of regulatory milestones, many represented simple budget reductions. The latter were accompanied by lower levels of agency effort and staff. In the case of enforcement, states also were expected to assume larger shares of program responsibility.

Additional budget decreases occurred in 1982 and 1983, but since 1983, real funding for the air quality program has remained relatively constant. Within the program, however, emphasis has changed somewhat. Since 1980, the agency has reduced its share of funding for enforcement and abatement and control while holding R&D roughly steady (except between 1982 and 1983). Between 1980 and 1984, the emphasis on enforcement fell dramatically, from \$39 million to \$20 million (in 1983 dollars), as states assumed more program responsibility and the agency less. By the end of 1982, for example, responsibility for more than 95 percent of the applicable standards for hazardous emissions had been delegated to the states, as had 90 percent of the applicable NSPS--an increase of 64 percent from the start of the year. Also, over the same period, funds for state grants fell 19 percent in real terms.

THE 1985 BUDGET REQUEST FOR AIR QUALITY

In his January 1984 budget submission, the President requested roughly \$229 million (in nominal dollars) for the air quality program in 1985. This sum, adjusted for inflation, represents a 3 percent drop from the total amount budgeted in 1984 (see Table 3). Funding for R&D shows little real change, while the largest relative real decrease occurs in enforcement (down 5 percent in real terms). More actual funding (\$6 million in 1983 dollars) is cut from the abatement and control program, however, accounting for 90 percent of expected overall reduction in program spending between 1984 and 1985. Most of this reduction occurs in resource assistance to the states, part of the "extramural funds" category.

Full-time agency employment is to increase from 1984 levels by approximately 9 percent. Unlike the funding changes, anticipated major staff increases occur in the abatement and control subprogram, owing to an increase in funds for agency salaries and expenses. Data on personnel levels are also presented in Table 3.

TABLE 3. THE EPA AIR QUALITY PROGRAM IN 1984 AND 1985,
BUDGET AUTHORITY in millions of nominal and constant dollars
AND STAFFING LEVELS in numbers of full-time positions

Program Component	1984 (Current Appropriations)		1985 (President's Request)		Percent Change	
	BUDGET AUTHORITY					
	ND	CD	ND	CD	ND	CD
Abatement and Control	141	135	142	129	a/	-4
Salaries and expenses	35	33	38	35	+9	+4
Extramural funds	106	101	104	95	-2	-6
Enforcement	21	20	21	19	a/	-5
Salaries and expenses	15	14	16	15	+11	+6
Extramural funds	7	6	5	4	-27	-30
Research and Development	62	59	65	59	+5	a/
Salaries and expenses	25	24	27	24	+6	+1
Extramural funds	37	35	39	35	+4	a/
Total	225	214	229	208	+2	-3
	STAFFING LEVELS					
Abatement and Control	745		817		+10	
Enforcement	366		395		+8	
Research and Development	353		380		+7	
Total	1,464		1,592		+9	

SOURCE: Congressional Budget Office.

NOTES: Nominal dollars (ND) not adjusted for inflation. Constant dollars (CD) are adjusted for inflation and represent 1983 dollar values. Details may not add to totals because of rounding. Percent changes were calculated before rounding and may not agree with rounded budget figures shown.

a. Less than 1 percent.

Explanation of Changes

Abatement and Control. The abatement and control subprogram consists of several activities: development of regulations for mobile and stationary emissions sources, resource assistance and air quality management support for states, compliance certification for mobile sources, and air quality monitoring and trends assessments. Compared to 1984 funding levels, the 1985 budget request for the entire abatement and control function is 4 percent lower in real terms.

The budget cuts in abatement and control are directed primarily at two areas--direct grants to states, and trends monitoring and progress assistance. In 1985, more than 60 percent of the total real budget reduction in abatement and control will affect direct grants to states, or in the so-called "Section 105" grants.^{3/} (These grants remain constant in nominal dollars between 1984 and 1985, but fall roughly 5 percent in real terms, representing a reduction of \$3.8 million in actual spending power).

From 1980 through 1985, state grants will have fallen 22 percent in real terms (see Appendix B). The EPA believes these reductions can be accommodated for several reasons. First, the states have made considerable progress in developing and implementing SIPs. Furthermore, many unnecessary and duplicative monitoring sites can be eliminated at substantial savings. Management efficiencies could also be applied in most programs to reduce administrative costs. And finally, state agencies can impose fees on permits to help offset costs. The EPA believes that, with such saving measures in effect, states will be able to pursue their current programs and even introduce some limited program innovations.

In recent years, such reductions in federal assistance probably were disruptive to many state programs. In 1982, many states faced their own fiscal constraints while assuming more responsibility in implementing air programs. Many also did not have adequate revenue measures--such as permit fees--to help supplant the lost federal money. But in 1983, economic recovery has increased state tax revenues, producing an aggregate state operating surplus in excess of \$10 billion at the end of the year. (Some

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3. Section 105(a)(1)(A) of the Clean Air Act provides that "The Administration may make grants to air pollution control agencies in an amount up to two-thirds of the cost of planning, developing, establishing, or improving, and up to one-half of the cost of maintaining programs for the prevention and control of air pollution or implementation of national primary and secondary ambient air quality standards."

states, however, still have operating deficits.) Though maybe shortlived, this upturn suggests that many states are now better able to cover lost federal support for state environmental programs than in the past. States also have had adequate time to plan new revenue measures to broaden their capacity to fund air quality programs. Nevertheless, lower federal support for state programs remains an important concern for the states.

In the trends monitoring and program assistance category, overall funds are reduced roughly \$1.1 million in 1983 dollars--roughly an 18 percent reduction in real terms for this category. Most of the funding cut will occur in extramural disbursements to the states for the purchase of monitoring equipment. The EPA reports that, in 1984, federal money was used for a one-time-only purchase of monitoring equipment to support development of a volume-specific particulate pollution standard; comparable expenditures will not be needed in 1985.

In other program areas, budgetary changes are not accompanied by major changes in current efforts. Notably, however, extramural contract funding, coincident with completion of several major studies for standards development, falls at the expense of some increases in salaries and expenses.

Enforcement. The enforcement subprogram is divided into activities applying to stationary and mobile emissions sources. For the overall subprogram, the 1985 budget is only 5 percent less in real terms than the 1984 budget, although real funding for the enforcement program had already fallen roughly 48 percent between 1980 and 1984. Most of the 1985 reduction occurs in extramural funds used to hire private-sector personnel under contract to help perform compliance inspections. Recent court orders have severely limited the involvement of contractors in on-site inspections; extramural funds are therefore reduced, with some compensating increases in salaries and expenses for EPA staff. Otherwise, no significant changes from 1984 are indicated in the management and implementation of the 1985 enforcement program. In general, as in 1984, states are expected to fulfill a large share of enforcement responsibility in the face of somewhat lower regional involvement by the federal government.

Research and Development. The R&D subprogram consists of investigations in four major areas: oxidants, hazardous air pollutants, emissions from mobile sources, and airborne gases and particulate matter. Each of these activities also typically subdivides funds into several areas, including scientific assessment and health effects. In real terms, the total requested 1985 budget for air quality R&D is essentially unchanged, although funding in the mobile source area will fall 15 percent.

Other Air Quality Programs. Study of scientific assessment and health effects receive most of the increases in the 1985 spending. Results from both areas of study are used to support developing standards--the former typically involves EPA staff analysis of data obtained from completed studies, while the latter involves funding of longer-term research, typically performed at university and other laboratories. In 1982 and 1983, extramural funding for health-effects research fell 13 percent in real terms but remained relatively stable in 1984 after add-on appropriations. The 1985 budget request would maintain the level established in 1984.

Policy Issues

The 1985 budget request for air quality portends little change in level and emphasis from those under 1984 appropriations. Important changes did occur between 1980 and 1984, however, as the EPA sought ways to accommodate budget reductions. During those years, budget dollars for state grants, enforcement, and to a lesser extent, long-term research were cut back. These reductions reflected a new philosophy at the EPA that emphasized state responsibility and near-term goals. Because the EPA wanted the states to contribute a greater share to program funding, state grants were reduced 19 percent in real terms in this period. Enforcement funds were cut back 48 percent in real terms for the same reasons. Finally, the EPA lowered long-term extramural research funds, because these monies were not critical to meeting the agency's near-term regulatory deadlines.

The effect on the air program from these changes is not yet clear, but critics have charged that the large reductions in state grants came at a time when states were unable to make up lost funds. Some observers also felt that reduced federal enforcement encouraged non-compliance, and that reduced long-term research impaired the EPA's ability to revise standards and deal effectively with future environmental issues. In light of the agency's history, however, evidence suggests that only the reductions in state grants may have had a noticeable effect on program efforts. Indeed, many states reduced staff and reported difficulty in implementing certain aspects of their air programs. ^{4/}

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4. A June 1982 report published by the National Governors' Association entitled The State of the States: Management of Environmental Programs in the 1980s, surveyed state environmental managers on the expected federal budget reductions. Roughly one-fourth to one-third indicated innovative programs, such as emissions banking and bubbling would have to be eliminated, and most indicated that state permitting efforts would fall, causing delays.

Nevertheless, agency funding and external factors in 1984 may help halt or reverse these recent trends. Though state grants may still be somewhat lower in 1985, cuts in this area have slowed, and many states now have surpluses in their operating budgets or new revenue measures in effect to compensate for reduced federal support. Most states also now have the authority to conduct most enforcement activities, allowing the EPA to concentrate its overview of state programs and pursuit of individual violations. Finally, by increasing or at least holding funds for long-term health research at present levels, the EPA is reversing a recent downward trend. Nonetheless, funding in this area remains at lower levels than before recent rounds of budget cuts.

CHAPTER III. WATER QUALITY

The Budget Prospect in Brief. Despite a funding reduction in real terms of 4 percent--from the 1984 level of \$206 million (in constant dollars) to \$198 million in 1985--water quality will remain the EPA's second largest program. (See Table 5 on page 32 for comparative data.) The President's proposal for 1985 continues the downward trend in water quality funding from its peak in 1979; the proposed 1985 level will fall 62 percent in real terms from the 1979 level. Program priorities will shift marginally, while the general emphasis on controlling discharges from point sources will remain unchanged. Abatement and control activities, responsible for standard setting, will bear nearly all the reduction, falling 7 percent in real terms from 1984. Enforcement and R&D funding, however, will increase by 9 percent and 3 percent, respectively. In general, the reduction in the EPA's water quality budget can be traced to the agency's near completion of effluent discharge standards. In addition, the budget cuts in abatement and control are consistent with the policy of shifting increasing program administration from the EPA to the states. The increased share of funding and personnel for enforcement, however, reflect the agency's growing emphasis on improving compliance with municipal and industrial discharge permits.

DEVELOPMENT OF THE CURRENT CONGRESSIONAL MANDATE

Water pollution comes from numerous sources, notably discharges from industrial and municipal wastewater treatment facilities (termed "point sources") and drainage from farmland, forests, and urban development (non-point sources). Among the most common pollutants observed by state officials who monitor water quality are high levels of nutrients, bacteria, suspended sediment, and organic materials that deplete oxygen in streams. Particular concern has recently increased over toxic pollutants in surface waters and contamination of groundwater by both conventional pollutants and toxic substances. Non-point source pollution has been cited as the principal remaining cause of water quality problems in six of ten EPA regions. ^{1/}

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1. See Environmental Protection Agency, Report to Congress: Nonpoint Source Pollution in the U.S., Office of Water Program Operations, Water Planning Division (January 1984).

The history of Congressional attention to water pollution begins with the Federal Water Pollution Control Act of 1948.^{2/} Major changes followed throughout the 1950s and 1960s. The current program, however, results primarily from the Federal Water Pollution Control Act Amendments of 1972 and the Clean Water Act of 1977. These acts established a "zero discharge" goal by 1985 and an interim water quality goal of "fishable and swimmable" waters by 1 July 1983.

The 1972 legislation required the EPA to develop limits for industrial and municipal discharges into the nation's waters. By 1 July 1977, direct industrial discharges were to be controlled by "best practicable control technology currently available" (BPT). The stricter standard of "best available technology economically achievable" (BAT) was to be in place by 1 July 1983. Where ambient water quality standards could not be met despite these effluent controls, even stricter controls could be imposed. Discharges from new sources were to be regulated by new source performance standards (NSPS) using the "best available demonstrated control technology." Industrial discharges into municipal sewage systems were to be regulated according to "pretreatment guidelines," designed primarily to prevent untreated industrial pollutants from interfering with conventional municipal treatment processes. Pretreatment standards are intended to impose the same types of limits on industrial discharges entering municipal water treatment works as BAT impose on direct industrial discharges.

Municipal sewage discharges were to undergo "secondary treatment" by 1 July 1977 and "best practicable waste treatment technology" (BPWTT) by 1 July 1983. To assist local governments in meeting these requirements, the 1972 amendments greatly increased the amount of federal aid--\$18 billion in nominal dollars was authorized over a three-year period--for constructing municipal wastewater collection and treatment systems. The 1972 amendments set the federal share at 75 percent of total planning, design, and construction costs.

The 1977 Clean Water Act specified different standards for toxic and conventional pollutants, a distinction not made in the 1972 law. The 1977 law required the EPA to develop, on the basis of BAT limits, industry effluent limits for control of the 65 classes of toxic pollutants referred to in the act. For conventional pollutants, BAT was replaced by "best conventional pollution control technology" (BCT), and the compliance deadline was

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2. For further background, see David Harrison, -Jr. and Robert Leone, Federal Water Pollution Control Policy, Working Paper Number 12 American Enterprise Institute (November 18, 1981), and Environmental Quality: The Sixth Annual Report of the Council on Environmental Quality (December 1975).

extended to 1984. BCT was to be as strict as the "best practicable control technology" (BPT) but no more strict than BAT. The 1977 act also allowed secondary treatment waivers for coastal municipalities discharging directly into marine waters.

Finally, to enforce all these standards, a system of permits--the National Pollution Discharge Elimination System (NPDES)--was established for all dischargers. The EPA would issue and enforce such permits on the basis of the appropriate standard, until such time as the states received federal authorization to administer the program. As of January 1984, 35 states and one territory had a fully delegated NPDES program.

In summary, the EPA is required to set three types of effluent limitations for industry: "best practicable technology" (BPT) for interim control, "best available technology" (BAT) for toxic pollutants, and "best conventional technology" (BCT) for conventional pollutants. These limits are to be enforced by issuance of permits to individual point sources. Finally, the EPA is required to set new source performance standards (NSPS) for direct industrial discharges and two types of pretreatment standards for industrial discharges into municipal treatment works--one for existing discharges from plants already in operation, and another for new sources.

Program Accomplishments and Future Direction

Over the decade 1972-1982, 49 states monitored the water quality of some 350,000 miles of streams (about 20 percent of the nation's total stream miles). Water quality was found to have improved in about 13 percent of the stream miles monitored, while water quality degraded in only 3 percent. The remaining 296,000 miles of stream (84 percent) were reported to have maintained an unchanged water quality. Similarly, of the 16 million acres of publicly owned lakes monitored by the states (roughly half of the nation's lake area), some 10 million acres (63 percent) maintained the same quality, 390,000 acres (2 percent) improved in quality, and 1.7 million (10 percent) were degraded. 3/

The EPA promulgates effluent limits, performance standards, and pretreatment guidelines for an entire industry or subcategory of an industry. Either the states or the EPA then issue NPDES permits to individual dischargers within an industry to enforce the standards. To date, the EPA's

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3. See Association of State and Interstate Water Pollution Control Administrators, America's Clean Water: The State's Evaluation of Progress, 1972-1982 (April 1984).

basic water program strategy has been to encourage continued delegation to the states of federal programs while fulfilling federal regulatory responsibilities under the Clean Water Act.

The 1972 act specified dates by which the EPA was required to set standards and guidelines. The EPA was unable to meet many of these deadlines, and court-approved extensions were granted in 1976 and again in 1982. In 1983, the EPA set a goal of promulgating 11 sets of guidelines and proposing nine more by the end of that calendar year.^{4/} At present, the EPA is slightly behind schedule, having promulgated seven guidelines and proposed five during 1983 (see Table 4).

A second goal for 1983 was the continued reorientation of the federal role in the water quality management program, away from project decision-making and toward oversight of delegated state programs. By the end of 1983, the EPA expected that 36 states would have fully delegated NPDES permitting authority and 49 states would have delegated water quality management programs. Both goals were met. Of the 65,000 NPDES permits currently in effect, the EPA is responsible for 10,000 while the states have permitting responsibility for 55,000.

Finally, under the construction grants program, the EPA expected to fund 771 municipal treatment plants and to complete another 1,136 in 1983. These goals were largely met, with EPA funding 809 treatment plants and completing 1,125. (See also Appendix B regarding the history of the construction grants program.)

Future Direction. Effluent guidelines and the NPDES permitting programs will continue to be the two major regulatory activities in the water program. According to the EPA, however, the agency's overall regulatory strategy is shifting, from first-round national effluent-based controls to site-specific water quality-based controls that incorporate limits on toxic pollutants. This shift is consistent with the intent of the Clean Water Act and the current status of many waterways. For example, where ambient water quality is poor because of multiple discharges and standards cannot be met with existing effluent controls, more stringent effluent limits will be imposed on dischargers. Though the agency has had authority to write quality-based permits since 1972, second-round permit guidance issued in 1983 encouraged such activities especially for controlling toxic discharges. These more stringent standards will be set primarily by the states

4. See Table 5 in Congressional Budget Office, "The Environmental Protection Agency: Overview of the Proposed 1984 Budget" (April 1983).

TABLE 4. COURT-APPROVED SCHEDULE FOR THE EPA'S
EFFLUENT GUIDELINES a/

Guidelines by Effluent Source	Proposal Date <u>b/</u>	Promulgation Date <u>b/</u>
Aluminum Forming	11/82	9/83
Battery Manufacturing	10/82	2/84
Coal Mining	12/80	9/82
Coil Coating	12/80	11/82
Copper Forming (Phase I)	10/82	8/83
Electrical/Electronic Component Manufacturing (Phase I)	8/82	3/83
Metal Moulding and Casting	10/82	6/84
Inorganic Chemical Manufacturing (Phase I)	7/80	6/82
Iron and Steel Manufacturing	12/80	5/82
Leather Tanning and Finishing	6/79	11/82
Metal Finishing	8/82	7/83
Nonferrous Metals Forming (Phase I)	1/83	1/84
Ore Mining	5/82	11/82
Organic Chemicals/Plastics/Synthetic Materials Manufacturing	2/83	2/85
Pesticides Manufacturing	11/82	11/84
Petroleum Refining	11/79	9/82
Pharmaceuticals Manufacturing	11/82	9/83
Porcelain Enameling	1/81	11/82
Wood Pulp and Paper Manufacturing	12/80	10/82
Steam Electric Generating	10/80	11/82
Textile Mills Operations	10/79	8/82
Timber Producing	10/79	1/81
Coil Coating (Phase II-can making segment)	1/83	11/83
Electrical/Electronic Components Manufacturing (Phase II)	3/83	11/83
Inorganic Chemicals Processing (Phase II)	9/83	6/84
Nonferrous Metals Forming (Phase II)	2/84	11/84
Nonferrous Metals Forming	4/84	10/84
Plastics Molding and Forming	2/84	9/84

SOURCE: Congressional Budget Office from the Environmental Protection Agency.

- a. Dates include all court-approved extensions through 6 January 1984.
- b. Date signed by the EPA Administrator.

on the basis of state water quality standards and state-developed relationships between individual dischargers and their effects on water quality. This implies a reduced federal role and increased state roles in abatement and control.

Critics of this emerging regulatory priority claim that control over toxic discharges will not be adequate under a water quality-based approach. They argue that current scientific information regarding the fate and effects of toxic pollutants is inadequate to establish precise levels of allowable discharges. A water quality-based approach also requires in-stream monitoring for toxics at levels of accuracy that might be prohibitively expensive. Instead, strict enforcement of existing BAT and pretreatment regulations might be a more effective way to curb toxic pollutants.

Controlling discharges of priority pollutants--especially toxic substances--and catching up with the current backlog of permits are the principal concerns of the NPDES program. By the end of 1983, about 6,300 EPA permits and 24,000 state permits had expired. At current rates of issuing permits (about 2,200 EPA and 5,600 state permits annually), a backlog is likely through 1985. To help reduce the backlog of expired permits, issuing general permits to entire categories of facilities discharging similar waste products will be given added emphasis.

One factor that could speed up permit issuance in 1985 will be promulgation of the remaining effluent guidelines. In the past, when BAT guidelines were not available, permits were either based on interim guidance (as was the practice in the early 1970s) or delayed until final regulations were issued. If all regulations are issued on schedule, that is, by February 1985, further delays in the permit program could be reduced.

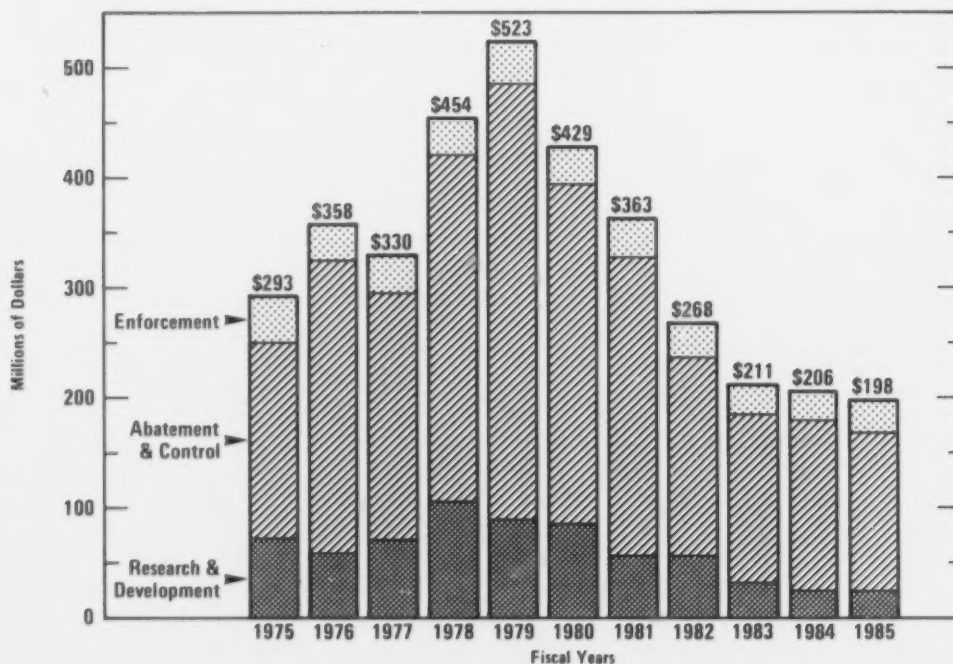
Finally, the agency is now gearing up for a renewed non-point-source control effort; very little funding has been allocated to this purpose since 1981. The exact nature of such a program could be influenced by the 1984 amendments to the Clean Water Act expected sometime this year. At present, the agency is making tentative plans with the Department of Agriculture to expand their cooperative (Rural Clean Water) non-point-source program.

BUDGETARY HISTORY

In general, funding for the water quality program seems to fall into three distinct phases: program start-up from roughly 1975 through 1979, a period of federal budget cuts in 1980 through 1983, and the current period 1984 and 1985.

Program Start-Up. The first phase of the EPA's water quality program culminated in the program's peak funding level of roughly \$523 million (in 1983 dollars) in 1979 (see Figure 4). Starting in 1972, as a consequence of

Figure 4.
EPA Funding for the Water Quality Program, 1975-1985
(In millions of 1983 dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

passage of the program's two pieces of authorizing legislation, funding grew while regulations were developed. ^{5/} Between 1975 and 1979, water quality

5. These acts were the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) and the Marine Protection, Research, and Sanctuaries Act (P.L. 92-532).

obligations increased at an average annual rate of about 16 percent, mostly in the abatement and control activity. Funding for enforcement was also relatively high because EPA was responsible for issuing the initial set of NPDES permits, a responsibility the federal government now shares with 36 states.

Federal Budget Cuts. Between 1979 and 1983, three forces working together lead to a 60 percent real reduction in federal water quality obligations. First, and probably most important, large and growing federal budget deficits began to dominate spending decisions in many program areas, and thus, the EPA's operating program budget for the four major programs fell by 13 percent in real terms between 1980 and 1981. Second, the Clean Water Act acknowledged that water pollution control programs should be transferred to the states as the overall program matured. This began to happen in the 1970s and was accelerated by the present Administration's New Federalism proposals in 1980. Recognizing that many states were already administering the water quality program, the Administration attempted to shift program costs to the states by consolidating and reducing state grants. Thus, between 1979 and 1983, state grants for water quality dropped by 61 percent in real terms (also see Appendix A). Third, the relative funding levels for research and development were sharply reduced, since scientific support for a large portion of new standards was completed, and current work was not yet reoriented toward toxic pollutants.

The Current Period. Beginning in 1983, funding for the water quality program began to stabilize around \$200 million a year. 6/ Over the several years prior to 1983, the rate of state delegation of EPA programs has slowed considerably. By 1981, for example, 33 states had NPDES permitting authority; two states were added in 1982, and only one other was added in 1983. Two more states should receive delegation in each of 1984 and 1985. Similarly, by 1981, 45 states had signed "Section 205(g) agreements" delegating to them management authority for construction grants. One state was added in 1982 and another four were added in 1983. No states will be added in 1984, and only one may be added in 1985. Therefore, further budget reductions could not be justified by citing states' assumption of programmatic or financial responsibility. Whether a flat water quality budget will be appropriate in future years, however, is unclear, especially

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6. Actually, the President's fiscal year 1984 request for water quality funding was \$138 million, with major cuts both in abatement and control and in research and development. A subsequent supplemental request restored funding for the water quality program to an equivalent 1983 level.

given the agency's plans to support a second round of water quality-based permitting as well as a renewed non-point-source control program.

THE 1985 BUDGET REQUEST FOR WATER QUALITY

In real terms, the President's requested 1985 water quality budget of \$218 million represents a 4 percent decline from the 1984 levels (see Table 5). This marks the lowest funding level since the program began and roughly a 62 percent real decrease from peak-year funding in 1979. At the same time, though--again, in real terms--the 1985 request amounts to a 3 percent real increase for R&D and a 9 percent real increase for enforcement. For abatement and control, it represents a 7 percent real reduction, however. If this budget is enacted, full-time employment in the federal water quality program also will increase by approximately 6 percent in 1985; personnel increases are most pronounced in the enforcement subprogram, with an 11 percent gain.

Explanation of Changes

Abatement and Control. The abatement and control subprogram comprises six activities: water quality and grants program management, effluent standards and guidelines, grants assistance programs, water quality strategies implementation, water quality monitoring and analysis, and municipal source control.

In 1985, the water quality and grants program management activities will experience a 7 percent real increase in funding owing largely to \$10 million (in nominal dollars) in new funding for the Chesapeake Bay Clean-up Program. In keeping with the EPA's delegation policy, funding for the agency's water quality management program will decrease by 36 percent in real terms in 1985.

A 46 percent real decrease--more than half of the total decrease in water quality abatement and control--will occur in effluent standards and guidelines. This cut reflects the agency's progress toward completion of necessary regulations. Other smaller real funding cuts will occur in grants assistance (-9 percent), monitoring and analysis (-3 percent), and municipal-source control (-5 percent).

For water quality strategies implementation, real funding will increase by 16 percent in 1985. Nearly all of this increase is attributable to a 54 percent real increase in the standards and regulations activity. This increase is consistent with the agency's commitment to water quality

TABLE 5. THE EPA WATER QUALITY PROGRAM IN 1984 AND 1985,
BUDGET AUTHORITY in millions of nominal and constant dollars
AND STAFFING LEVELS in numbers of full-time positions

Program Component	1984 (Current Appropriations)		1985 (President's Request)		Percent Change	
BUDGET AUTHORITY						
	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>
Abatement and Control	163	155	158	144	-3	-7
Salaries and expenses	50	48	53	48	+6	+1
Extramural funds	113	107	105	96	-7	-11
Enforcement	29	27	33	30	+14	+9
Salaries and expenses	24	23	27	25	+14	+9
Extramural funds	5	5	6	5	+13	+8
Research and Development	25	24	27	24	+8	+3
Salaries and expenses	14	14	16	15	+12	+7
Extramural funds	<u>11</u>	<u>10</u>	<u>11</u>	<u>10</u>	<u>+3</u>	<u>-2</u>
Total	216	206	218	198	+1	-4

STAFFING LEVELS						
Abatement and Control	1,007		1,053		+5	
Enforcement	563		624		+11	
Research and Development	<u>222</u>		<u>226</u>		<u>+2</u>	
Total	<u>1,792</u>		<u>1,903</u>		<u>+6</u>	

SOURCE: Congressional Budget Office.

NOTES: Nominal dollars (ND) not adjusted for inflation. Constant dollars (CD) are adjusted for inflation and represent 1983 dollar values. Details may not add to totals because of rounding. Percent changes were calculated before rounding and may not agree with rounded budget figures shown.

standards (in addition to existing effluent controls) as an approach to achieving cleaner water. The agency will focus on the development of criteria for sediment, estuarine waters, aquatic toxicity, and sludge. Together, these will help support state water quality-based standards, from which more stringent effluent controls may be implemented.

Enforcement. Two elements constitute the water quality enforcement subprogram: enforcement and permit issuance. Compared to 1984, the EPA's 1985 request for enforcement will increase by 12 percent in real terms, while its 1985 request for permit issuance will increase by 5 percent. Overall, the 1985 real funding request for the water quality enforcement subprogram is about 9 percent higher than the 1984 level.

The enforcement element includes NPDES permit compliance monitoring, administrative enforcement actions, and technical support for court litigation with NPDES permit violators. Increased 1985 funding will support two initiatives: ensuring that municipal sewage treatment facilities comply with Clean Water Act discharge limits, and enforcing industrial wastewater pretreatment requirements (primarily in the 36 states lacking approved pretreatment programs).

The permit issuance element incorporates technical, administrative, and legal activities necessary for the EPA to issue NPDES permits for the remaining 15 states and 4 territories without a fully delegated permit program. The 5 percent real increase over the 1984 level of funding is dominated by a 15 percent real increase in salaries for an additional 38.5 personnel work years. Real funding for extramural activities will be cut by about 16 percent. According to the EPA, additional in-house support will help the agency eliminate its major permit backlog by the end of 1985. Continuing emphasis will be given to the issuance of major industrial and municipal permits, as well as to issue general permits to entire categories of facilities. The EPA will continue to evaluate numerous municipal and industrial requests for Section 301(h) marine discharge waivers, Section 301(g) water quality variances, Section 301(c) economic variances, and extensions of BAT compliance deadlines.

Research and Development. The R&D subprogram is divided into three main areas of research: water quality, municipal wastewater, and industrial wastewater. Together, funding for these programs will grow in real terms by 3 percent over their 1984 combined level. Within that total, however, water quality research will be cut by 4 percent in real terms (a decrease of \$0.6 million in 1983 dollars); municipal wastewater research will grow by 8 percent (an increase of \$0.6 million in 1983 dollars); and industrial wastewater research will grow by 40 percent (an increase of \$0.7 million in 1983 dollars).

Water quality research will provide scientific and technical background in support of state water quality-based permitting. This marks a major shift from the traditional strategy of technology-based effluent standards. Research into health effects will be transferred from the water quality program to the Drinking Water Program. Some \$500,000 (in nominal dollars) will support a water quality research program undertaken in cooperation with the Peoples Republic of China.

Municipal wastewater research provides the technical basis for EPA guidance on sludge disposal, wastewater treatment processes, and cost-effective compliance with discharge permit effluent limits. Health research will be limited in 1985 as projects now under way are completed. Research into environmental engineering and technologies for wastewater treatment will increase by 17 percent in real terms in 1985. New projects will be initiated in the areas of wastewater treatment processes for the control of toxic discharges and low-cost compliance measures.

The 40 percent real increase in funding for industrial wastewater research is dominated by an eight-fold increase in funding for environmental engineering and technologies for industrial control. The major project in this area concerns development of a manual documenting industry's toxicity reduction procedures. As in 1984, research on the health effects of industrial discharges will receive no funding in 1985.

Policy Issues

For the fourth consecutive year, very little EPA funding has been available for control of pollutants from non-point sources (runoff from farmland, feedlots, or city streets, for example). By some estimates, however, non-point sources contribute 50 percent or more of the total pollutant loads to U.S. lakes and rivers.^{7/} Some 37 states report that they will be unable to meet the "fishable and swimmable" goals of the Clean Water Act because of non-point-problems.^{8/} At the same time, the EPA and the states are continuing to impose stricter effluent controls to improve water quality in rivers failing to meet standards despite implementation of BAT and BCT. In such rivers, water quality may be so degraded by

7. See Congressional Research Service, Water Quality: Implementing the Clean Water Act, Issue Brief IB83030 (August 1983).

8. See Council on Environmental Quality, Environmental Quality 1981, the 12th Annual Report of the Council on Environmental Quality (1981).

non-point-source runoff that additional point source control would be expensive to dischargers without producing substantially cleaner water. But a great deal of uncertainty also surrounds the costs and water quality benefits achievable with non-point-source controls.

Both the House and the Senate have recognized this problem and have called for a new non-point-source control program in recent proposals (H.R. 4037 and S. 431). It would seem prudent that more stringent point-source controls be balanced against non-point-source controls in terms of each strategy's costs and expected benefits to water quality. Such efforts could be funded both through the R&D activity (to investigate control procedures) and through the abatement and control activity (to develop control strategies and support state implementation).

Opponents of federally funded non-point-source controls argue that such a strategy would have to be based on land use restrictions--traditionally a province of local government. In addition, the Clean Water Act gives the EPA no specific authority to regulate non-point sources. Through 1981, the EPA funded areawide water quality planning with section 208 state grants. Though non-point-source controls were included in such plans, putting the plans into practice was not funded by EPA and many plans were shelved. As a result, only limited non-point source controls have been implemented by state or local agencies. These have included local soil conservation programs, zoning ordinances to reduce urban construction runoff, and locally funded control of storm water runoff.

CHAPTER IV. HAZARDOUS AND SOLID WASTE

The Budget Prospect in Brief. Slated to continue as the EPA's third largest operating program, the hazardous waste program is charged mainly with administering Subtitle C of the Resource Conservation and Recovery Act of 1976. This law regulates the handling of hazardous waste (mostly from industrial manufacturing) from the point of generation through disposal. The 1985 budget request of \$143 million (in nominal dollars) represents a 6 percent real increase over the 1984 budget level. (See Table 6 on page 43 for comparative data.) Grants to the states for financial aid in abatement and control are the major part of the hazardous waste budget to experience a real decrease from 1984 under the President's 1985 request. The decrease in state support funds would occur despite the EPA's plans to delegate parts of its workload to the states, a move dependent on successful development of state-level hazardous waste programs. At present, however, only one state has received final program authorization from the EPA.

DEVELOPMENT OF THE CURRENT CONGRESSIONAL MANDATE

In 1976, national concern about environmental contamination led to passage of the Resource Conservation and Recovery Act (RCRA), the first legislative attempt to deal with the dangerous by-products generated mostly by U.S. manufacturing. In a year's time, an estimated 40 million to 150 million metric tons of hazardous wastes--ranging from discarded pesticides to spent cleaning solvents--are produced in the United States. The 1976 act provides the mandate for federal regulation of the generation, transportation, treatment, storage, and disposal of these hazardous substances.

Today, most hazardous wastes are disposed of into or onto the land, because these are generally the least expensive methods. But certain land disposal technologies, especially landfills, can result in contaminated groundwater if not properly managed. Other waste disposal methods, such as incineration, can also produce potentially harmful health effects. Thus, current law is now undergoing revisions to ensure that the safest disposal methods are chosen for each type of waste. The objective of current law is to minimize the release of hazardous substances both in the near and long term. The estimated incremental costs of properly managing waste as it is

generated are ten to 100 times less than the future costs of cleaning up poorly managed disposal sites. ^{1/}

The RCRA establishes guidelines for the management of hazardous waste from generation to disposal. Accordingly, the act instructs the EPA to identify and list hazardous wastes, to develop a system for tracking them and to establish performance standards and a permit system for their treatment, storage, and disposal. Deadlines for accomplishing these goals were set, with the basic regulatory framework to be completed by April 1978.

Under the RCRA, states are encouraged to assume primary responsibility for hazardous waste programs so long as the state program is at least as stringent as the federal program. States authorized to administer their own hazardous waste programs (that is, "delegated states") become eligible for federal grant assistance to do so. The EPA expects that, by 1985, most states will be fully authorized or will at least have an authorization application under review.

Program Accomplishments and Future Directions

Efforts made under the RCRA to date have resulted in the listing of more than 400 waste streams for regulation and the development of a "cradle-to-grave" tracking system to monitor waste management practice. All hazardous wastes shipped off-site must be accompanied by a manifest, which is eventually returned to the waste generator as assurance of proper waste disposal. Treatment, storage, and disposal facilities handling hazardous wastes have received interim permits from the EPA.

The EPA has operated behind schedule and has missed many of the original deadlines set forth in the RCRA. Promulgation of basic regulations occurred mostly in 1980 and early 1981, rather than early in 1978. Interim final regulations for land disposal were not issued until July 1982, following the EPA's unsuccessful attempt to appeal a court order directing the agency to issue them. ^{2/} Evaluation and revision of the RCRA regulations remains an ongoing EPA activity.

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1. See Office of Technology Assessment, Technologies and Management Strategies for Hazardous Waste Control (March 1983).
 2. See State of Illinois v. Gorsuch (D.D.C. Civil Action No. 78-1689) timetable requiring EPA to issue regulations for existing hazardous waste land disposal facilities.

Approximately 8,000 hazardous waste treatment, storage and disposal facilities must eventually be issued permits if they are to continue in operation. Permit issuance for treatment, storage, and disposal facilities has proceeded much more slowly than planned, however. In 1981, only one permit was issued. In 1982, the EPA made four final determinations (either approving, denying, or rejecting permit application), although the initial budget estimate for that year called for 100 permit actions. In 1983, the EPA processed 249 permits--a better rate, but still below the initial budget estimate of 750 permits to be finalized. At present, the EPA estimates completing final determinations on 342 permits in 1984 and 294 permits in 1985, with states to make an additional 835 permit decisions in this same period. As of February 1984, only 115 facility permits had actually been issued, but almost 700 facilities had closed or withdrawn their applications rather than submit permits to the EPA for review.

The delegation of hazardous waste program responsibilities to the states has also been a major focus of the EPA's efforts under the RCRA. So far, only Delaware has succeeded in achieving final authorization from the EPA to regulate all aspects of the RCRA program. Forty-five states have received Phase I interim authorization to manage RCRA programs, although these states lack the power to issue facility permits. Twenty-two states also have been delegated Phase II interim authority by the EPA to issue permits to certain types of hazardous waste facilities.

The EPA and agencies in delegated states have not vigorously enforced compliance with RCRA regulations. In 1983, facility inspections by the EPA and the states did increase by 14 percent from the previous year, reflecting the EPA's growing emphasis on this element of the program. Recent studies have found, though, that more than 50 percent of hazardous waste facilities are in violation of the RCRA's groundwater monitoring requirements.^{3/} In those states lacking the authority to issue administrative compliance orders, enforcement efforts have also been limited. State agencies so hampered generally choose to undertake costly court litigation for only the most serious violations.

Despite initial EPA and state activities in implementing the requirements of the RCRA, an estimated volume of hazardous waste equal to that now regulated under the RCRA--about 40 million tons--has escaped control

3. See, for example, General Accounting Office, Interim Report on Inspection, Enforcement, and Permitting Activities at the Hazardous Waste Facilities, RCED-83-241 (September 21, 1983).

through gaps in EPA regulations.^{4/} Congressional concern about these loopholes has arisen during the RCRA reauthorization process begun in 1983, and amendments to Subtitle C now pending would extend regulatory coverage to important waste management practices that the EPA had failed to consider.^{5/} Additional changes would ban the land disposal of certain hazardous wastes and encourage the use of safer treatment technologies, the development of which remains impeded by the present cost advantage of landfills under RCRA regulations.

Future Direction. The EPA's future efforts will concentrate on developing final hazardous waste rules; monitoring of treatment, storage, and disposal facilities; and issuing facility permits. A new policy allowing permits for entire classes of storage and treatment facilities may be initiated to reduce the paperwork and time required for permit issuance.

When it can, the EPA also plans to delegate program responsibility to the states. The agency hopes that 40 states will receive full program authorization by the end of 1985. So far, though, only one state has received final EPA authorization to regulate all aspects of the RCRA program. The EPA has consistently overestimated the pace of authority transfer, in part because of its own failures to issue guidelines in a timely manner. The present budget calls for continued development of final authorization guidance documents in 1985, even though the authorization deadline falls in the second quarter of 1985.

Significant resources will also be devoted to meeting the new requirements of the proposed 1984 reauthorization bill. The EPA must begin regulating the burning of hazardous wastes in industrial boilers for heat recovery and the blending of wastes in commercial fuel oil within two years. Thousands of small-quantity waste generators, previously exempted from any EPA control, must be regulated in some manner within 18 months. Under a statutory timetable, the EPA must also examine each of its listed wastes and, for each waste, make a positive determination that landfilling the waste is safe; otherwise, the waste will be banned from use as landfill. Of particular concern is whether the EPA will be able to meet the many

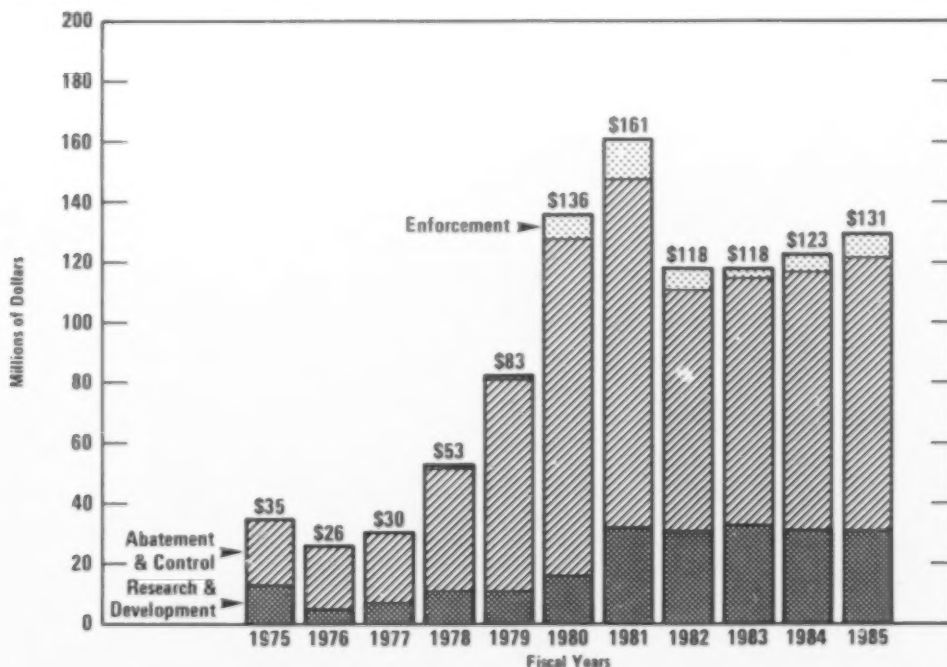
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4. Hazardous Waste Control and Enforcement Act of 1983, Report on H.R. 2867 by the House Committee on Energy and Commerce, Report No. 98-198, Part I (May 17, 1983), p. 19.
 5. H.R. 2867 passed the House of Representatives on November 3, 1983. The major Senate bill, S. 757, was favorably reported out of the Senate Committee on Environment and Public Works on July 18, 1983, and it awaits consideration by the full Senate.

regulatory deadlines imposed by the bill and whether the agency can ensure enough alternative treatment capacity as the landfill ban contained in the bill begins to take effect.

BUDGETARY HISTORY

Following a peak in 1981, real federal funding levels for solid and hazardous waste management dropped significantly, increasing only slightly in ensuing years (see Figure 5). Real funding levels for solid and hazardous waste management programs between 1975 and the current request are portrayed in Figure 5. Before passage of RCRA in October 1976, the EPA

Figure 5.
EPA Funding for the Solid and Hazardous Waste Program, 1975-1985
(In millions of 1983 dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

regulated solid waste management practices under the Solid Waste Disposal Act. Management activities included grants to states to support a national inventory of open dumps, and research into solid waste resource recovery methods (such as recycling or heat recovery from municipal waste.)

From 1977 to 1981, the EPA's emphasis on solid waste management activities decreased, as the agency began to implement the new hazardous waste management responsibilities contained in the RCRA's amendments to the earlier disposal act. The hazardous waste program under the RCRA began in 1977, although the basic regulatory framework was not in place until May 1980 (two years after the regulations were required). This delay was caused in part by budget cuts in research and development, which hampered the EPA's ability to promulgate regulations for a complex new media program. The R&D program suffered a 64 percent real funding cut in 1976 that was not fully restored until the end of 1979. All solid waste management activities, including state grants for this purpose (see Appendix A), were terminated at the end of 1981. Solid waste management has therefore been solely the states' responsibility since 1982.

From 1982 to the present, only hazardous waste activities have been funded under the RCRA. Overall, the program has grown 10 percent in real terms from 1982 to the requested 1985 level. The apparent drop in enforcement funding from 1981 to 1983 is attributable in part to the transfer of certain activities (legal enforcement, permit issuance) to other EPA subprograms. Actual enforcement in the 1981-1983 period remained relatively stable, dropping 1 percent in real terms. The percentage of total program funding devoted to enforcement in this period was only 3 percent in real terms, however (compared to 9 percent for the air and 12 percent for water programs).

THE 1985 BUDGET REQUEST FOR HAZARDOUS WASTE

The President's budgetary request for 1985 generally continues the past three years' trends of marginally increased funding. The President's 1985 request for the hazardous waste program is approximately \$143 million in nominal dollars (see Table 6), a 6 percent real increase from the 1984 level of \$129 million. It includes real increases of 3 percent for R&D, 5 percent for abatement and control, and 40 percent for enforcement activities. Compared to 1982, the 1985 request represents a 10 percent real increase in funding for hazardous waste management.

The full-time employment request is greater than the 1984 level by about 11 percent. The largest anticipated increase in staff is 19 percent for

TABLE 6. THE EPA HAZARDOUS WASTE PROGRAM IN 1984 AND 1985,
BUDGET AUTHORITY in millions of nominal and constant dollars
AND STAFFING LEVELS in numbers of full-time positions

Program Component	1984 (Current Appropriations)		1985 (President's Request)		Percent Change	
	BUDGET AUTHORITY					
	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>
Abatement and Control	90	86	100	91	+10	+5
Salaries and expenses	22	21	26	23	+15	+10
Extramural funds	68	65	74	68	+9	+4
Enforcement	6	6	9	8	+46	+40
Salaries and expenses	6	6	7	6	+17	+12
Extramural funds	0	0	2	2	0	0
Research and Development	32	31	35	32	+8	+3
Salaries and expenses	11	10	13	12	+23	+17
Extramural funds	<u>22</u>	<u>21</u>	<u>22</u>	<u>20</u>	<u>a/</u>	<u>-4</u>
Total	129	123	143	131	+11	+6
	STAFFING LEVELS					
Abatement and Control	488		533		+9	
Enforcement	162		175		+8	
Research and Development	150		179		+19	
Total	<u>800</u>		<u>887</u>		<u>+11</u>	

SOURCE: Congressional Budget Office.

NOTES: Nominal dollars (ND) not adjusted for inflation. Constant dollars (CD) are adjusted for inflation and represent 1983 dollar values. Details may not add to totals because of rounding. Percent changes were calculated before rounding and may not agree with rounded budget figures shown.

a. Less than 1 percent.

R&D (the only subprogram to lose staff from 1983 to 1984). Staff for abatement and control is slated for a 9 percent increase in 1985, while the enforcement staff will receive an 8 percent increase from 1984 under the President's request. Overall, the staff level for the hazardous waste program in 1985 would increase by 51 percent from the level in 1982, the first post-peak year of funding.

Explanation of Changes

Abatement and Control. The abatement and control subprogram consists of three activities: waste management regulations, guidelines, and policies; financial assistance; and waste management strategies implementation. The first activity is directed toward developing regulations. Financial assistance provides funding to states for developing and implementing hazardous waste management programs. The waste management strategies activity coordinates regional EPA responsibilities for overseeing and operating state hazardous waste programs.

The proposed 1985 funding for waste management regulations, guidelines, and policy activities is 21 percent greater in real terms than in 1984. This funding will support EPA oversight of developing state programs and efforts to close Congressionally identified loopholes. The EPA has also repeated its 1984 budget goal to list as "hazardous" certain additional classes of chemicals for regulation under the RCRA. Although two listing proposals were made in 1983, the EPA has not formally listed any new hazardous wastes in the last three years and has issued special exemptions to more than 250 waste streams.

Financial assistance to the states will be decreased by 4 percent in real terms (the funding level in both years is \$47 million in nominal dollars) with a shift in emphasis from program development to state-level regulation. States with authorized programs will be given increasingly large permit and enforcement responsibilities, with corresponding decreases in the EPA's workload. This reflects the EPA's major goal to shift program implementation activities to the states. However, the EPA's proposed cut in real dollar support to states in 1985 may delay the final authorization process. This in turn may trigger the RCRA requirement that the EPA administer and pay for RCRA programs in states not receiving final authorization by January 1985. In the face of limited budget resources, some states may conceivably choose to let their programs revert to federal control. This could strain the EPA's resources in other subprograms. At present, the agency hopes that 40 states will have received full program authorization by the end of 1985. This estimate is down five states from a similar EPA estimate made last year. The EPA's current estimate that 11 states will

receive full authorization by the end of this year has also been revised downward from the original 1984 estimate of 18. As noted above, only Delaware has thus far received full program authorization.

Establishment of state RCRA programs is also important to carrying out the permitting process under the waste management strategies implementation activity. To support regional EPA offices in developing state programs and processing facility permits, this budget will receive a real increase of 8 percent (from \$16 million in 1984 to \$18 million in 1985, both in nominal dollars). Under the RCRA, treatment, storage, and disposal of hazardous waste can only occur in accordance with a permit issued by the EPA or an authorized state. In 1983, the EPA estimated that issuing final permits to the approximately 8,000 facilities needing them could take up to ten years. To reduce this backlog, the agency is increasing the use of permit assistance teams to support the regions' and states' permit-writing efforts. The EPA is also hoping to propose class permit regulations for the estimated 1,565 facilities that store wastes above ground. These regulations, which would reduce informational requirements rather than serve as a blanket permit for all such facilities, are not likely to become final until early 1985 at best. In the interim, the EPA's overall permit strategy will be to issue permits first to new or expanding waste management facilities, then to existing incineration or land disposal facilities, and finally, to all others.

Enforcement. To support plans to increase compliance evaluation inspections at permitted facilities and interim status groundwater monitoring facilities, the 1985 request for enforcement funding incorporates a real increase of 40 percent, from \$6 million to \$9 million (in nominal dollars). This reflects the EPA's goal of reducing facility noncompliance rates of over 50 percent in priority areas of groundwater monitoring and financial and closure requirements. The EPA expects to use these monies to continue conducting inspections of hazardous waste facilities in 1985, even if regular inspections are not mandated by the upcoming reauthorization bill. The EPA will also increase its emphasis on obtaining detailed state enforcement statistics to support a computer data base designed to monitor enforcement efforts once violations are detected. Where necessary, the EPA also plans to issue warning letters and compliance orders to induce facility compliance or initiate compliance litigation with the Department of Justice. Hazardous waste permit issuance, formerly funded under this subprogram, is now performed under the abatement and control subprogram.

Research and Development. The R&D subprogram would receive the smallest increase in real funding (3 percent) in the EPA's proposed 1985 hazardous waste budget, including a real decrease of 4 percent from 1984 in extramural research funding. Activities within this subprogram include scientific assessment of the health and environmental effects of unlisted

hazardous wastes and research in development of new control technologies. Both of these activities will be essential in building a scientific base for new regulations required under expected amendments to the RCRA.

Policy Issues

As in other areas of responsibility, the EPA's 1985 goals for the hazardous waste management program are to delegate greater management responsibilities to the states and to increase enforcement and permitting efforts. The agency may also need to satisfy the many new regulatory requirements contained in the proposed 1984 RCRA reauthorization bill.

One of the EPA's primary goals for the hazardous waste program in 1983-1985 has been to authorize states' operation of their own programs. This will enable the agency to transfer major permitting and enforcement responsibilities to the states as the agency has done with other environmental programs. The current state grant funding request falls short, however, of the EPA's projected needs for states to operate their own programs. ^{6/} States will not share in the 40 percent increase proposed for EPA enforcement activities in 1985, although the agency is planning to delegate a significant enforcement workload to the states. The EPA may also transfer portions of state grant funds, as it did in 1983, to outside contractors for permit review activities related to the agency's own permitting responsibilities. In addition, the EPA's new groundwater office has also recently recommended using 3 percent to 7 percent of 1985 RCRA state grants to fund state groundwater activities. If this plan is approved, states would have to divert these monies to groundwater programs at the expense of existing program responsibilities. The EPA's proposed real decrease for state support funds under the RCRA could therefore delay the state authorization process and the EPA's plans to delegate parts of its workload to the states. This could then strain the agency's resources in other subprograms.

The largest proposed increase in the President's 1985 RCRA request is for enforcement activities. This subprogram will receive a 40 percent real increase in funding and an 8 percent increase in staff from the 1984 level. Permit efforts within the abatement and control subprogram will receive a real increase of 8 percent from 1984, to support EPA's goal of reducing the ten-year permit backlog. Success in this area largely depends on state

6. See Environmental Protection Agency, Operations/Resource Impact Analysis, RCRA Subtitle C (April 1980).

program development, however, for the EPA hopes to delegate major permitting responsibilities to states that can achieve final authorization.

The EPA may also need to meet many new requirements contained in the 1984 RCRA reauthorization bills. Though the agency has begun developing regulations for certain programs that the Congress is likely to mandate (such as regulations applying to small generator and waste burning/blending), the EPA has repeatedly warned that the bills' changes will be extremely burdensome on ongoing agency activities. Some proposed amendments, for example, would require the EPA for the first time to assess the environmental fate of the more than 400 listed RCRA wastes for all treatment or disposal methods and then promulgate regulations to assure that the safest disposal method is employed for each waste. Thus, the EPA may be required to examine each waste on its lists under a legislative timetable and determine for each whether landfilling is safe or should be prohibited. Whether the EPA has the technical and budgetary resources necessary to implement these land disposal prohibition requirements, is unclear, however. A final concern arising from the upcoming reauthorization of the RCRA regards the ability of states to incorporate the act's changes in their management programs without added further delays to the EPA's planned delegation of program responsibilities.

CHAPTER V. TOXIC SUBSTANCES

The Budget Prospect in Brief. One of the EPA's newer commitments, the toxic substances program, currently ranks fourth among EPA's regulatory programs and will continue to do so in 1985 with a proposed budget of \$80 million (in nominal dollars). (See Table 7 on page 54 for comparative data.) This 1985 budget request includes an 10 percent real increase from the 1984 appropriations level, but it remains 36 percent lower in real terms than in 1980, its peak year of funding. The largest relative change from 1984 to 1985 would occur in the enforcement subprogram, slated to receive a real funding increase of 42 percent and a personnel increase of 41 percent. Abatement and control would receive a lesser real increase of 9 percent, and R&D a 6 percent increase.

DEVELOPMENT OF THE CURRENT CONGRESSIONAL MANDATE

Of the 4 million or more chemical compounds known, some 55,000 are now in commercial production. Since most of these products were marketed before control legislation was passed, the adverse environmental and health effects of some have been discovered only after their use has become widespread and after they have become important to industry, commerce, or agriculture. Today, the environmental and health effects of many new and existing chemical products remain unestablished. Such substances, whether benign or noxious, occur in countless products and uses.

Before 1976, more than two dozen federal laws exercised control over toxic substances as they affected food, the workplace, the air, or water. Until passage of the Toxic Substances Control Act (TSCA), the EPA's toxic substances program was carried out under the authorities granted in the Clean Air Act, the Safe Drinking Water Act, the Federal Water Pollution Control Act, and the Federal Insecticide, Fungicide, and Rodenticide Act. But important gaps of authority marked many of these laws. Perhaps most notably, no authority existed for pre-market screening of chemicals unless they were pesticides, drugs, or food additives. The TSCA was written, and passed in 1976, to close these gaps.

The TSCA is a complex piece of legislation with authority to evaluate and if necessary, regulate any stage of a chemical's life cycle, including manufacture, processing, distribution, use, and disposal. The act contains four major sections. For existing chemicals, Section 4 authorizes the EPA

to promulgate requirements for testing by manufacturers or processors. Section 5 authorizes the EPA to evaluate new chemicals before their manufacture; manufacturers of new chemicals must give the EPA at least 90 days' notice before beginning manufacture. The EPA can also, by rule, require that chemicals produced for significant new uses be subjected to the 90-day review. Section 6 authorizes the EPA to regulate the manufacture, processing, and commercial distribution of existing chemicals that present "unreasonable risk" as determined by the agency, to human health or to the environment. Section 8 authorizes the EPA to require chemical-producing firms to maintain and report information concerning the uses, production levels, numbers of workers exposed, and health and environmental effects of chemicals.

Program Achievements and Directions

The program's major accomplishments to date have been the publication, in 1979, of the Section 8(b) inventory of existing chemicals; the establishment and operation (also in 1979) of the Section 5 premanufacture notification system; the regulation of polychlorinated biphenyls (PCBs), asbestos, and chlorofluorocarbons (CFCs); and the publication of testing guidelines for chemicals. In the course of the previous year, final rules were issued under Section 6 for the marking and disposal of PCBs; for prohibiting the use of certain CFCs for all "nonessential aerosol applications;" and for prohibiting the manufacture, processing, distribution, and non-totally-enclosed use of PCBs. In the first half of 1980, the EPA issued rules for the control of wastes contaminated with PCBs.

Several chemical control rules have also been proposed. In May 1980, the EPA, in conjunction with other agencies, banned the use of PCB-containing equipment in food- and feed-processing plants and storage facilities; in federally inspected meat, poultry, and egg product establishments; and at agricultural chemical facilities where pesticides and fertilizer are manufactured or stored. Later in 1980, the EPA proposed a rule requiring all primary and secondary schools to identify crumbling ("friable") asbestos in their buildings.

The agency has published more than 100 testing guidelines and negotiated a substantial number of testing agreements. It has also updated the TSCA inventory of chemicals in commerce to include a current total of more than 60,000 chemicals.

But the toxic substances program has also experienced several delays. Although the TSCA deadline for publication of the inventory of existing chemicals was set for October 1978, the EPA decided to delay publication so

that it could issue a master inventory that would be the cornerstone of a chemical information system for regulation of existing chemicals. This delayed publication until June 1, 1979. Another delay occurred in meeting the 12-month statutory "response requirements" for chemicals referred for testing consideration to the EPA by the Interagency Testing Committee (ITC). The EPA has now responded to the backlog of designations and since 1982, has met all statutory requirements.

Future Direction. Activities are under way in all four of the TSCA's main regulatory sections. In 1985, the agency plans to issue 17 testing decisions. These will include responses to the 13th and 14th ITC list designations, as well as the first testing actions on non-ITC designations. In addition, some 20 past testing decisions will be put in final form. The agency plans to initiate or propose four final Section 6 actions on existing hazardous chemicals. In addition, the agency plans to propose or finalize 12 significant new use rules on existing chemicals under Sections 5 and 8 of the TSCA.

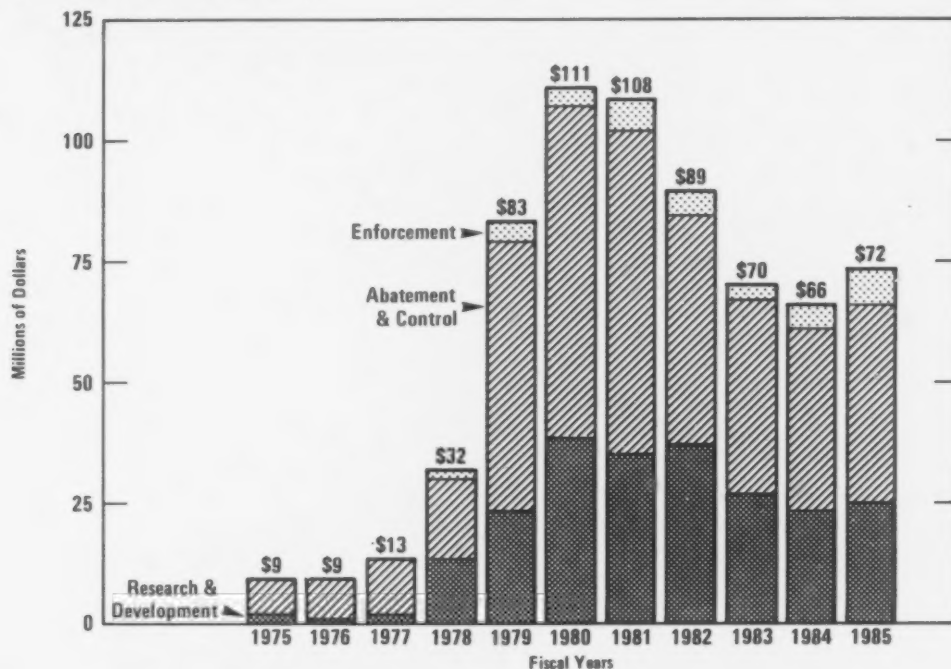
Under Section 5, the EPA is expected to receive approximately 1,650 pre-manufacture review notices--up by 200 from 1984. The EPA also expects to perform risk assessments on 180 new chemicals; approximately 120 of these will result in some agency control action, either regulatory or non-regulatory. In addition, the agency plans to subject certain genetically engineered substances to Section 5 review.

A number of changes begun in 1982 and 1983 were directed toward improving and streamlining the testing process so that it could respond more effectively to the many statutory demands of the TSCA. Under Section 4, the EPA now attempts to negotiate voluntary agreements with industry for testing chemicals to avoid promulgating time-consuming test rules. This approach speeds the development of needed test data and requires fewer resources. In addition, the EPA's experience with the review of new chemicals resulted in a more focused process that allows the agency to move quickly on those chemicals that present the greatest risk. The agency has proposed an exemption policy that would establish an abbreviated scientific assessment for categories of low-risk chemicals.

BUDGETARY HISTORY

Peak funding for the toxic substances program occurred in 1980 at roughly \$111 million (in 1983 dollars), about 36 percent higher in real terms than the 1985 request of \$72 million and roughly 41 percent higher in real terms than the 1984 funding levels of \$66 million (see Figure 6). Budget reductions after 1980 partly reflect completion of some regulatory milestones and major technical studies. Mostly, however, they reflect a

Figure 6.
EPA Funding for the Toxic Substances Control Program, 1975-1985
(In millions of 1983 dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

relatively lower priority for the still-nascent TSCA program. The 1985 request thus restores some of the funds cut since the 1980 peak.

In the program's early years, as standards development took highest priority, abatement and control received the greatest share of program funds. But by 1980, the relative funding shares for enforcement and research and development (which supports future standards development) had grown. The share for abatement and control fell somewhat after 1980, as the program achieved early regulatory milestones. After 1980, enforcement to ensure compliance and R&D to support future standards largely replaced abatement and control as top funding priorities under the TSCA. In 1984 and 1985, enforcement is slated to receive relative greater budgetary emphasis. A significant number of TSCA rules are now in effect, and compliance with these rules is a major program focus.

THE 1985 BUDGET REQUEST FOR TOXIC SUBSTANCES

At \$80 million (in nominal dollars), the requested 1985 budget for the toxic substances program represents an 10 percent real increase from the current funding level (see Table 7). The largest relative increase--a 42 percent real rise--occurs in the enforcement subprogram, but the abatement and control subprogram will receive the largest actual dollar boost (\$5 million in nominal dollars over 1984 levels).

The number of full-time EPA employees in the toxic substances program will also increase--by 17 percent. Reflecting the budget request, the largest relative staff increase will occur in the enforcement subprogram.

Explanation of Changes

Abatement and Control. The overall funding for abatement and control activities will increase in 1985 by 9 percent in real terms, although funding for toxics "integration" will undergo a slight decrease as a result of transferring resources to the Office of Policy, Planning, and Evaluation. This function encompasses several activities, including chemical testing, new chemicals, existing chemicals, evaluation, and control, TSCA information, and toxics integration (devoted to coordinating information on common toxics research and abatement activities).

In 1982 and 1983, the EPA issued many testing decisions but it did not finalize them. The focus of the program was to meet court-ordered deadlines on the backlog and to respond to new ITC designations within the statutory time frame. The backlog will be caught up in 1984. In 1985, efforts will focus on finalizing many of these testing decisions and on establishing a process for finalizing these testing actions more efficiently. Increased funding will go to the effort to finalize testing decisions and to improving the data audit program, which ensures that all data produced under TSCA testing actions are adequate for regulatory purposes. (The audit program is essential to ensure the quality of data received from both negotiated and formal testing agreements made with industry.)

The thrust of the new and existing chemicals programs is to evaluate available information on chemicals or, when necessary, require that information be developed or reported, and on the basis of findings, to determine if the chemicals pose some risk that warrants regulatory action to control their manufacture, distribution, or use. The agency estimates that roughly 1,650 new chemicals will be submitted for review in 1985; some 180 are expected to require detailed review to characterize their risk; and about 120 will require either regulatory or nonregulatory control action. To help

TABLE 7. THE EPA TOXIC SUBSTANCES PROGRAM IN 1984 AND 1985,
BUDGET AUTHORITY in millions of nominal and constant dollars
AND STAFFING LEVELS in numbers of full-time positions

Program Component	1984 (Current Appropriations)		1985 (President's Request)		Percent Change	
	BUDGET AUTHORITY					
	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>
Abatement and Control	40	38	45	41	+15	+9
Salaries and expenses	18	17	20	19	+14	+9
Extramural funds	22	21	25	23	+15	+10
Enforcement	5	5	7	7	+49	+42
Salaries and expenses	4	3	5	5	+52	+45
Extramural funds	1	1	2	2	+39	+33
Research and Development	24	23	27	25	+11	+6
Salaries and expenses	12	12	13	12	+4	a/
Extramural funds	<u>12</u>	<u>12</u>	<u>14</u>	<u>13</u>	<u>+18</u>	<u>+13</u>
Total	69	66	80	72	+16	+10
	STAFFING LEVELS					
Abatement and Control	387		433		+12	
Enforcement	92		130		+41	
Research and Development	<u>154</u>		<u>177</u>		<u>+15</u>	
Total	633		740		+17	

SOURCE: Congressional Budget Office.

NOTES: Nominal dollars (ND) not adjusted for inflation. Constant dollars (CD) are adjusted for inflation and represent 1983 dollar values. Details may not add to totals because of rounding. Percent changes were calculated before rounding and may not agree with rounded budget figures shown.

a. Less than 1 percent.

perform risk assessments, collect and process information, and otherwise evaluate whether certain substances present "unreasonable risk," the new chemical review activities will increase slightly. The major initiative in this program will be the development of expertise on biotechnology (the production of specific organisms through gene manipulation).

Toxics integration activities in the past have reflected the EPA's interest in identifying and managing "intermedia" chemical problems and fostering better communication with states and regions on toxic substances. The 1985 request for this activity will fall by roughly \$600,000 as a result of transfer of resources to the Office of Policy, Planning, and Evaluation.

Enforcement. The enforcement subprogram ensures compliance with the TSCA and related rules and regulations governing toxic substances. It includes direct agency involvement in monitoring activities, as well as agency-directed enforcement actions in cooperation with the states in cases of noncompliance. Another enforcement activity is to grant assistance monies to state agencies for development and operation of compliance monitoring programs. In 1985, EPA funds for specific enforcement activities will increase by roughly \$2.3 million (in nominal dollars), but state enforcement grants will remain at the same nominal level as in 1984--\$0.5 million. Including the grants, extramural funding in this program will increase 33 percent in real terms, with the objective of obtaining greater data support from private-sector contractors. Federal employment in enforcement overall also will rise by 41 percent.

Research and Development. The toxic substances R&D subprogram consists of six activities covering health effects, environmental processes, and scientific assessments. Further development of risk-assessment techniques is critical to assessing the importance of the numerous chemicals entering production or already in use. Funding for the overall subprogram will rise in 1985 by 6 percent in real terms, while employment will rise by 15 percent. The 1985 increase, however, will still be 36 percent lower in real terms than 1980 levels. Most of the 1985 increase is directed toward extramural funds (a 13 percent real rise over 1984) to obtain contractor support in the development of exposure-monitoring methods, in quality assurance, and in the initiation of methods for evaluating environmental risks. Agency salaries and expenses for the subprogram remain essentially level in real terms.

In the scientific assessment activity, funding increases are directed toward metabolic studies as they may apply in assessing exposure to toxic substances. In the monitoring systems and quality assurance activity, increases reflect initiatives in support of PCB regulations, and in developing methods for measuring organic toxins. In the environmental and engineering

and technology activity, increases will be used to develop and improve methods for exposure estimation. Similarly, the environmental processes program will use the increased resources to develop and improve risk-assessment techniques. Finally, the stratospheric modification activity will continue current research on the environmental effects of increased ultraviolet radiation caused by possible stratospheric changes in the earth's ozone layer.

Policy Issues

Between 1980 and 1984, the EPA's R&D budget for toxic substances fell 39 percent in real terms, although the TSCA is one of the agency's newest programs. The 1985 request restores some of these reductions by raising R&D funds 6 percent in real terms over 1984 levels. Most of the increased effort will be devoted to developing improved risk-assessment methods, which are used to perform critical evaluations of chemicals in the TSCA program. How quickly such methods can be developed to help evaluate the thousands of chemicals entering production each year or already in use is not known, however.

CHAPTER VI. THE SUPERFUND FOR HAZARDOUS SUBSTANCE CLEANUP

The Budget Prospect in Brief. Now the EPA's fastest growing spending program, the Hazardous Substance Response Trust Fund, commonly termed the Superfund, received its first appropriation of \$75 million in 1981. Monies from the Superfund finance the costs of cleaning up inactive hazardous waste sites or spills of hazardous substances that threaten public health. The 1985 budget request from the fund--\$640 million in nominal dollars--represents a 33 percent real increase over the 1984 level. (See Table 8 on page 63 for comparative data.) Only 7 percent of this request would come in the form of transfers from the U.S. Treasury, since Superfund appropriations are covered primarily by receipts of a tax on industrial chemical production. Even with the 1985 request granted, however, the EPA expects the Superfund's resources to be nearly exhausted by the end of 1985, when less than half of the top-priority hazardous waste sites will be cleaned up. Since the Superfund's authorization is also to expire at that time, the Congress must eventually consider alternative measures for replenishing the fund if cleanup efforts are to continue. The EPA estimates the costs of future site cleanups to range from \$8.4 billion to \$16 billion, and other analysts have projected still higher amounts. At current rates of spending and taxation, it would take from 25 to 50 years to clean up an EPA-projected total of 1,400 to 2,200 hazardous waste sites nationwide.

DEVELOPMENT OF THE CURRENT CONGRESSIONAL MANDATE

Potential dangers from the millions of metric tons of hazardous waste improperly disposed of each year in the United States have only recently been recognized. About 17,000 inactive waste disposal sites identified as posing environmental threats may require some form of cleanup. Potential risks to public health and to the environment from these sites include contamination of surface water and groundwater, destruction of animal and plant life, and combustion. In 1980, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) created the Superfund to help clean up inactive hazardous waste sites and spills of substances threatening public health and the environment.

The Superfund is not part of the EPA's operating budget. Rather, it is a separately administered trust fund, with a legislative ceiling of \$1.6 billion, financed by money from three sources: excise taxes on petroleum and

certain chemicals; appropriations from the general fund of the U.S. Treasury; and penalties, recoveries, and interest earned on the fund balance. The taxes, in effect since April 1981, will terminate on 30 September 1985, unless extended by the Congress. Use of the Superfund is authorized indefinitely for payment of federal or state government emergency response costs, claims, and damage assessments. Federal cleanup activity may not be initiated in a state until that state commits itself to covering 10 percent of a cleanup project's costs. The fund does not compensate individuals incurring medical or other expenses attributed to releases of hazardous substances.

Program Accomplishments and Future Direction

Though passed in 1980, the Superfund program did not become fully operational until 1982. The focus of the program to date has been on coordinating emergency spill responses (so-called "removal actions") and to identify and evaluate abandoned hazardous waste disposal sites (to begin long-term "remedial action" and cleanup). In 1983, the EPA conducted approximately 100 emergency removals--twice as many as in 1982. The EPA also monitors private, state, and local government response actions.

The EPA has also begun to identify and clean up abandoned hazardous waste sites, though progress in this work has been slow. Through 1983, the EPA had completed 5,041 preliminary assessments for the roughly 17,000 potential hazardous waste sites now on the agency's inventory of sites. More thorough site inspections had been completed for 2,197 of the sites assessed. The EPA hopes to complete preliminary assessments for nearly all the 17,000 hazardous waste sites in the Superfund inventory by the end of 1986 and to conduct full site inspections for half of these sites by the end of 1987.

The EPA has used these assessments and inspections to rank the potential dangers posed by each hazardous waste site and then designate the sites in most urgent need of cleanup on the National Priorities List (NPL). Under the Superfund program, only designated NPL sites are eligible for remedial action funds (cleanups of any site not on the NPL must be funded by state, local, or private money). Through 1983, the EPA had begun remedial action investigations for 138 of the 546 NPL sites now designated. The agency has initiated cleanups at 21 of these sites. Six sites have been fully cleaned up and removed from the list. The EPA believes that cleanups at about 140 NPL sites can be performed with the Superfund revenues expected through 1985.

To secure help in covering cleanup costs, the EPA has also used its powers under CERCLA to file lawsuits against or reach settlements with parties responsible for abandoned waste sites. Through 1983, the EPA had

recovered less than \$3 million in cases in which federal Superfund monies had already been spent on site cleanup. (Through 1983, the EPA had obligated \$339 million in nominal dollars for removal and remedial actions undertaken.) The agency has been considerably more successful, however, in inducing voluntary cleanups of waste sites. In 1982, the agency negotiated settlements for privately financed response actions worth about \$29 million (in nominal dollars). Settlements for 1983 were even higher, totaling \$92 million.

Future Direction. The Administration is currently studying alternative ways to fund the Superfund program through the remainder of this decade. Unless extended legislatively, both the excise taxes and the general fund transfers will expire at the end of 1985 or shortly thereafter; the existing Superfund can be appropriated until it is exhausted. The proposed 1985 request (including the \$50 million supplemental appropriation proposed for 1984) would essentially deplete the fund balance by the end of 1985, however.

By 1985, the EPA plans to complete screening and assessing all reported uncontrolled hazardous waste sites to verify their NPL rankings. Remedial investigations and planning at new sites will continue, as will on-site cleanups where designs have been completed. By the end of 1985, the EPA hopes to have initiated 260 remedial actions and begun designing solutions for 135 NPL site cleanups. States will be encouraged to manage response actions. Enforcement efforts will also continue in hope of matching responsible parties with the costs of cleanup. The EPA estimates that from \$2 to \$44 million a year could be recovered for the fund through successful enforcement actions.

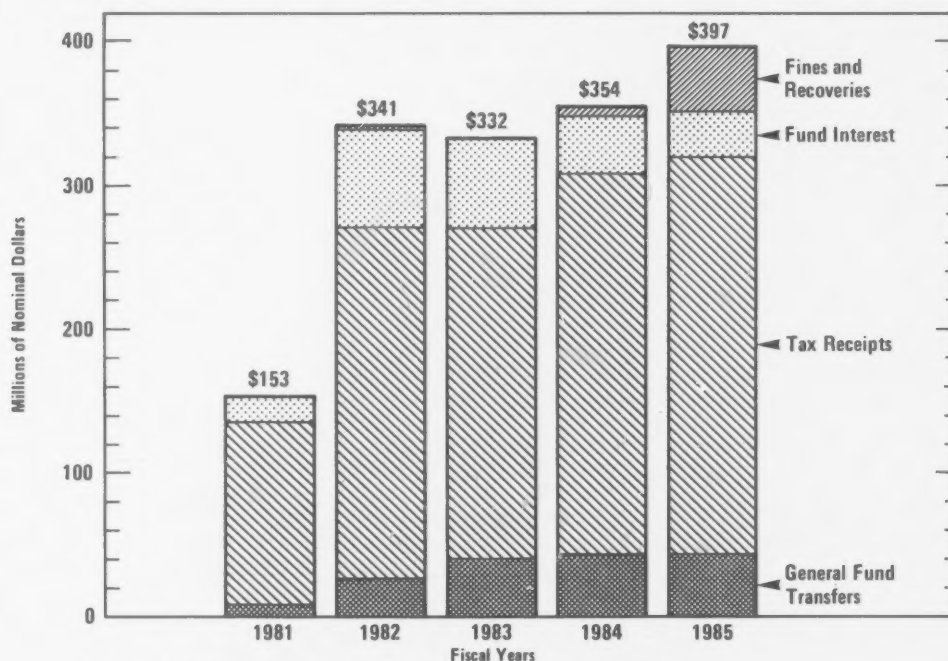
The EPA also plans to revise certain Superfund cleanup standards, under terms of a settlement agreement the agency has entered into with the Environmental Defense Fund. These revisions will include new guidance on minimum cleanup standards for remedial action (including the possible application of Resource Conservation and Recovery Act, or RCRA, standards to Superfund cleanups), more definitive procedures on public participation in Superfund cleanups, and the possible addition of federal facilities to the NPL.

The EPA also expects to complete preliminary assessments for the approximately 11,000 sites that have not yet been investigated. (The EPA also believes that an additional 5,000 to 6,000 new hazardous waste sites may need to be added to the present inventory.) In light of past experience, the EPA estimates that about 850 to 1,650 of these sites could eventually warrant designation as NPL sites requiring remedial action.

BUDGETARY HISTORY

Revenues to the Superfund are projected to total \$397 million in nominal dollars in 1985, a 7 percent nominal increase over the 1984 level (see Figure 7). Since 1981, the fund has been financed largely from excise taxes authorized under the Superfund, which have raised about \$240 million (in nominal dollars) in fund revenues annually from producers of petrochemicals. Tax revenues have been about 17 percent to 20 percent less than the Congress originally projected, largely because of the effects of economic recession on chemical production. The EPA estimates that tax revenues will be above \$260 million (in nominal dollars) in 1984 and 1985, however, because of the upswing in economic activity. Interest earned on the fund balance

Figure 7.
Revenue Sources for the Superfund Program, 1981-1985
(In millions of nominal dollars)



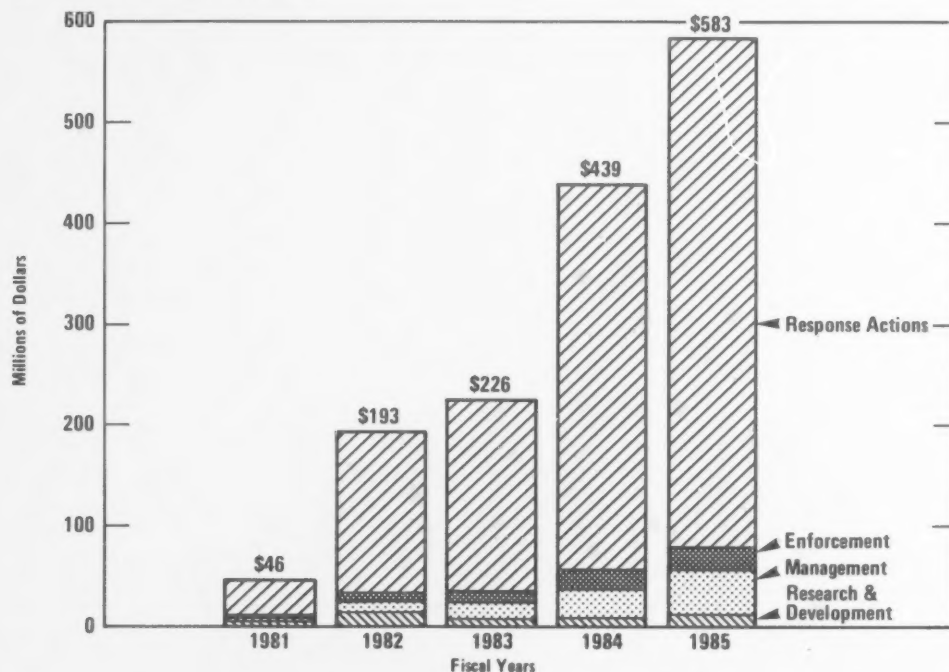
SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority. Not shown is a one-time transfer of \$6.7 million from the Clean Water Act, Section 311(k) fund to the Superfund in 1981.

peaked in 1982 at \$68 million (in nominal dollars) and is projected to earn only about \$31 million in 1985. The program's direct cost to the federal government, through general fund appropriations, has leveled off at about \$44 million (in nominal dollars) for 1984 and 1985. Fines and recoveries have provided only \$3 million (in nominal dollars) through 1983, though the EPA hopes that more vigorous enforcement efforts will raise \$46 million (in nominal dollars) in 1985. (The CBO reestimate of the President's budget projected that fines and recoveries would total only \$20 million in 1985, however.)

The growth of the hazardous substance response program has far exceeded that of other subprograms under the Superfund (see Figure 8).

Figure 8.
Uses of the Superfund, 1981-1985
(In millions of 1983 dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

Continuing this pattern, the fund would receive 86 percent of the program budget in 1985. Enforcement, the second largest subprogram, will represent about 8 percent of the total program in 1985.

Compared to the EPA's overall budget, the Superfund (though not a part of EPA's operating budget) has grown in just five years to the second largest agency spending program, following immediately behind construction grants for pollution control equipment in all other areas of EPA jurisdiction. This trend is likely to continue, given the public's continued concern about abandoned waste sites and in light of new, unexpectedly high projections of the actual numbers and cleanup costs of problem waste sites. The pace and scope of cleanup, as well as the chosen financing mechanisms, will necessarily affect the program's future costs to the federal government.

THE 1985 BUDGET REQUEST FOR THE HAZARDOUS SUBSTANCE RESPONSE FUND

The 1985 appropriation request of \$640 million is \$180 million (in nominal dollars) higher than the 1984 level, representing a 33 percent real increase (see Table 8). Most of the dollar increase (\$154 million) is in the largest subprogram area--hazardous substance response actions.

The 1985 request for the R&D subprogram is 38 percent greater in real terms than the 1984 level, though, in 1985, real funding at this level would still be 22 percent lower than in 1982, the first year of full program implementation. The real funding level for management and support activities will increase by 13 percent in 1985 relative to the 1984 level. The proposed 1985 budget for the enforcement subprogram is 51 percent higher in real terms than the 1984 level. This increase will support an intensified effort by the EPA to arrange private financing for hazardous substance release response. The Superfund program staff level will increase 24 percent, from 1,010 full-time positions in 1984 to 1,250 in 1985.

Explanation of Changes

Management and Support. The funding level for management and support increases 13 percent in real terms between 1984 and 1985, from \$21 to \$25 million (in nominal dollars). This is the smallest proposed real increase for Superfund subprograms. Expenses in this subprogram include rents, utilities, program analysis, and budget formulation.

Enforcement. Superfund enforcement activities are of three types: technical enforcement, technical support, and legal enforcement. Technical

TABLE 8. THE EPA SUPERFUND PROGRAM IN 1984 AND 1985,
BUDGET AUTHORITY in millions of nominal and constant dollars
AND STAFFING LEVELS in numbers of full-time positions

Program Component	1984 (Current Appropriations)		1985 (President's Request)		Percent Change	
BUDGET AUTHORITY						
	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>	<u>ND</u>	<u>CD</u>
Management and Support	21	20	25	22	+19	+13
Enforcement	31	30	49	45	+58	+51
Research and Development	9	8	13	11	+45	+38
Hazardous Substance Response Fund	<u>400</u>	<u>381</u>	<u>554</u>	<u>504</u>	<u>+39</u>	<u>+32</u>
Total	460	439	640	583	+39	+33

STAFFING LEVELS						
Management and Support	121		140		+16	
Enforcement	303		471		+55	
Research and Development	41		58		+41	
Hazardous Substance Response Fund	<u>545</u>		<u>581</u>		<u>+7</u>	
Total	1,010		1,250		+24	

SOURCE: Congressional Budget Office.

NOTES: Nominal dollars (ND) not adjusted for inflation. Constant dollars (CD) are adjusted for inflation and represent 1983 dollar values. Details may not add to totals because of rounding. Percent changes were calculated before rounding and may not agree with rounded budget figures shown.

a. Less than 1 percent.

enforcement is the largest component of this subprogram, accounting for 75 percent of the funding request in 1985. The requested appropriation for technical enforcement increases by 54 percent in real terms from the 1984 level (including a \$1.3 million supplemental request). Technical enforcement activities include negotiating voluntary settlements with parties responsible for hazardous sites, developing evidence for litigation in instances in which voluntary settlements cannot be negotiated, and recovering costs from responsible parties after expenses have already been incurred by the EPA. (Because of their unique nature, Superfund enforcement activities are not comparable to other EPA programs' enforcement efforts.)

Research and Development. The funding level of \$13 million (in nominal dollars) in 1985 for Superfund R&D is 38 percent higher in real terms than the 1984 level, but 22 percent lower in real terms than in 1982. Resources in this subprogram are used to apply to Superfund programs research products from other EPA programs. Superfund R&D receives less than 3 percent of the Superfund appropriation in both 1984 and 1985.

Hazardous Substance Response Actions. This subprogram includes the EPA hazardous substance response and interagency hazardous substance response. The 1985 funding request of \$554 million (in nominal dollars) for these activities reflects a 32 percent real increase over the 1984 level (including the EPA's supplemental request for 1984). Interagency activities include policy development and training and guidance of response personnel. Agencies providing support for spill responses (except the Federal Emergency Management Administration) are reimbursed from the fund for their efforts. The EPA projects that interagency activities will account for only 3 percent of the subprogram budget in 1985. A similar projection by the EPA for 1984 was not borne out, however, as the EPA now estimates that 1984 expenses for interagency activities will be more than quadruple the amounts originally anticipated--that is, \$38 million (in nominal dollars), rather than \$8 million.

The EPA hazardous substance cleanup activities constitute the bulk--86 percent--of Superfund efforts. The 41 percent real increase for this category in 1985 reflects the continued expansion of the EPA's hazardous substance response program (for both planned removal and remedial actions) under the Superfund program. The EPA estimates that, by the end of 1985, remedial actions will be initiated at about 260 sites, with design solutions under way for 135 more. The EPA also plans to continue assessments and investigations of the roughly 17,000 potentially dangerous waste sites now identified and to add some of these sites to the NPL, thereby making them eligible for remedial action funds. An EPA task force recently concluded that an additional 850 to 1,650 sites may need to be added to the NPL. Addition of these sites would bring the total number of sites on the NPL to at

least 1,400 and as high as 2,200. The task force estimated cleanup costs for these sites to range from \$8.4 billion to \$16 billion. ^{1/}

Policy Issues

Legislative and revenue-raising authorities under CERCLA expire at the end of 1985, and the act must be reauthorized if Superfund cleanup efforts are to continue. The EPA expects current fund resources to be exhausted early in 1986, when less than half of the NPL sites currently named will be cleaned up and before additional sites requiring response action can even be made eligible for funding. In choosing to extend the program, the Congress will face important issues regarding the need for additional site cleanups, alternative approaches for replenishing the fund, the speed and pace of the Superfund cleanup effort, and the role of the states in supporting the Superfund program.

The Need for Additional Cleanup. As noted above, addition of 850 to 1,650 sites to the NPL might entail as much as \$16 billion in cleanup costs according to the EPA. This amount is ten times the Superfund's current authorization. In fact, however, the General Accounting Office and other analysts believe the costs of cleaning up these sites could be significantly greater when all relevant expenses (such as long-term maintenance and aquifer cleanup) are taken into account. ^{2/} None of these estimates consider cleanup costs for a range of sites greater than the EPA anticipates; notably, they exclude potential cleanup costs for federally owned facilities that may require remedial action to protect public health.

Financing Fund Replenishment. Unless reauthorized, the Superfund program will cease in early 1986 when the 1985 budget request will be fully obligated. Some additional cleanups will occur without the reauthorization of the Superfund, using funds obtained by the EPA from successful enforcement actions against responsible parties. The EPA's projected enforcement revenues of \$52 million in 1984-1985 would fall far short of current need, however.

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1. Memorandum to Alvin Alm and Lee Thomas from Alvin R. Morris, Director of Superfund Task Force, Environmental Protection Agency, Office of Solid Waste and Emergency Response (December 8, 1983).
 2. See, for example, statement of Hugh Wessinger, General Accounting Office, before the House Committee on Energy and Commerce, Subcommittee on Commerce, Transportation and Tourism, March 1, 1984.

Several reauthorization proposals are now pending before the Congress that seek to replace or supplement the existing excise tax on petrochemical producers with a unit tax on new hazardous wastes generated and disposed of.^{3/} Supporters of the "waste-end" tax argue that this measure would provide an incentive for firms to reduce future rates of hazardous waste generation, and it could thus potentially reduce the number of Superfund sites produced in the long term. Opponents of waste-end taxes argue that taxing current waste generators is inequitable, since these firms are not necessarily responsible for the existing waste sites requiring cleanup. The excise tax now in force is also generally acknowledged to be a more stable source of program funding. The proposed reauthorization bills also seek to raise as much as \$10 billion for the Superfund, with all the bills (except S. 816) substantially increasing the direct federal contribution from the present annual \$44 million general appropriation to about \$190 million each year. Increasing the federal contribution reflects a view held in some quarters that, in cases in which responsible parties cannot be located, waste site cleanup generates a social cost to be absorbed by all taxpayers. Opponents of the increase argue that reliance on federal funding of hazardous waste site cleanups will only increase in the future and could come to represent a significant cost to the federal government, since responsible parties for waste sites seldom possess the resources needed for proper cleanup.

Speed and Pace of Cleanup. If current rates of Superfund spending and taxation continue, it will take from 25 to 50 years to clean up the additional hazardous waste sites that the EPA projects will require remedial response. Arguing that the risks of environmental contamination demand expanded program efforts, at least one reauthorization proposal (H.R. 4813) would mandate a quicker cleanup pace, setting milestones for site assessment and cleanup. Opponents of this approach argue that if the Superfund is to be reauthorized, program spending should be spread out over many years, to avoid imposing an unduly large tax burden on the petrochemical industry, which finances most of the present Superfund.

The pace of the Superfund cleanup effort will also depend on when the Congress reauthorizes the fund. This is because full remedial actions take from 30 to 50 months to complete, so that as the fund begins to dwindle, delaying reauthorization until near the deadline could slow the pace of future cleanups.

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3. As introduced, H.R. 3129 proposed a "waste-end" tax to fully replace the existing excise tax. S. 1779 and S. 860 would also eliminate the excise tax in favor of some form of waste tax. S. 816 would extend the existing tax through 1990. Finally, H.R. 4813 would use a combination of both mechanisms.

Finally, the cleanup standards that the EPA employs for designated NPL sites will affect the pace of the program. If the Congress requires cleanup standards compatible with the RCRA hazardous waste program (see Chapter IV), site cleanups will likely be more costly than if less stringent requirements were allowed. As a result, the EPA would be able to complete fewer cleanups with available funds.

The Role of States in the Superfund. The Congress may also wish to examine how well the Superfund program promotes or inhibits state involvement in site cleanup. To the extent that resources can be made available, states do seem to be taking action to clean up hazardous waste spills and sites. State spending on hazardous substance response increased in 1984--in a sample of 40 states--from \$119 million (in nominal dollars) in 1983 to an anticipated 1984 level of \$301 million--but so did state dependence on federal support of these activities. Federal support rose from 67 percent in 1983 to 76 percent in 1984 in the same 40 states.^{4/} State-initiated cleanups could be delayed in some instances, however, because Section 114 of CERCLA may preempt duplicative state Superfund-type laws designed to raise revenues for state hazardous substance response programs. State support for federal remedial actions may also be impeded by the current requirement that states must pay 100 percent of long-term operating and maintenance costs.^{5/}

4. See Environmental Protection Agency, State Cleanup Programs for Hazardous Substance Sites and Spills, study prepared by the Association of State and Territorial Solid Waste Management Officials (December 21, 1983).

5. The fund pays 90 percent of initial cleanup costs only.

APPENDIXES

APPENDIX A. FEDERAL GRANTS TO STATES

In drafting the major pieces of federal environmental legislation, the Congress consistently incorporated the objective of financial and technical support to the states. ^{1/} Accordingly, the EPA makes grants to states under all the operating programs reviewed in this paper--air, water, hazardous wastes, and toxic substances (see Table A-1). Federal grants to states play an important role in environmental program management. Though the sums vary widely from state to state, in 1982 aggregate terms, federal funds provided about 45 percent of state air program budgets, about 46 percent of state water quality program budgets, and about 69 percent of state hazardous waste program budgets. ^{2/}

For all four programs together, federal dollars going as grants to states reached a first peak of \$446 million (in 1983 dollars) in 1975. Between 1975 and 1979, aggregate grant monies fluctuated between \$200 million and \$400 million a year (in 1983 dollars), reaching a second peak in 1979. Since then, grant funding has fallen by 54 percent to about \$175 million (in 1983 dollars) in 1985. This recent decline has slowed since 1983, with a negligible drop in 1984 grants and a 5 percent drop planned in the 1985 request (see Figure A-1).

Within the water quality program, grants to states have fallen the most sharply of the four programs. Between 1978 and 1985, grants to states for water quality have dropped by about 73 percent from \$188 million (in 1983 dollars) to \$52 million. Since 1983, however, these grants have remained relatively stable. The reduction and eventual elimination of Section 208 areawide water quality planning grants account for most of the precipitous drop. Reductions in Section 106 grants for state water quality management have contributed somewhat less to the overall decrease.

Grants to states in support of air quality programs have remained relatively stable over the last ten years, having fluctuated in the \$80 million

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1. See, for example, Section 101(b)(3) of the Clean Air Act, Section 101(b) of the Clean Water Act, or Section 1003(1) of the Resource Conservation and Recovery Act.
 2. See National Governor's Association, The State of the States: Management of Environmental Programs in the 1980s (June 1982).

TABLE A-1. EPA FUNDING FOR SELECTED PROGRAM GRANTS TO STATES, 1975-1985 (In millions of 1983 dollars)

Program	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Air Quality <u>a/</u>	97	86	87	97	176	103	100	94	85	84	80
Water Quality <u>b/</u>	349	187	127	188	146	126	109	64	57	56	52
Solid and Hazardous Waste <u>c/</u>	--	3	5	21	61	48	44	45	44	45	43
Toxic Substances <u>d/</u>	--	--	--	--	--	--	1	1	0	1	1
Total	446	275	217	307	382	276	254	203	186	185	175

SOURCE: Congressional Budget Office.

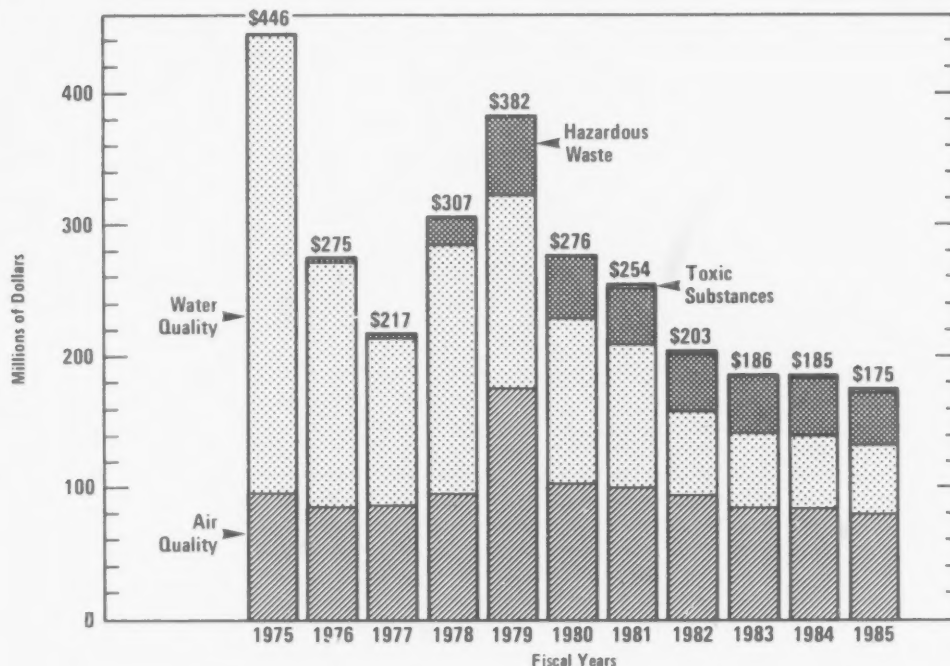
NOTES: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority. Details may not add to totals because of rounding.

- a. Includes grants under Sections 105 and 175 of the Clean Air Act.
- b. Includes grants under Sections 106 and 208 of the Clean Water Act plus Clean Lakes Grants.
- c. Includes Hazardous Waste Management Grants, Solid Waste Management Grants, and Resource Recovery Grants.
- d. Includes Toxics Enforcement Grants.

Figure A-1.

EPA Funding for Selected Program Grants to States, 1975-1985

(In millions of 1983 dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

to \$100 million range, with only one exception. In 1979, they jumped to about \$176 million, most of which was provided to assist states in preparing State Implementation Plans. These SIPs were mandated by the 1977 amendments to the Clean Air Act, and they were to be submitted to the EPA no later than calendar year 1979. Over the last five years, state air quality grants have drifted slowly downward, from \$103 million in 1980 to \$80 million in 1985--about a 20 percent reduction over the five-year period.

Grants to support state **solid waste management** and resource related programs began in 1976, the year the Resource Conservation and Recovery Act was passed. Under the RCRA, two types of grants were available through 1978--for solid waste management and for resource recovery. In

1979, the EPA began providing a third grant to support state **hazardous waste management** programs. This accounts for the jump in RCRA grants to nearly \$61 million (in 1983 dollars) in 1979. Since 1979, hazardous waste management grants have more than doubled, while the other two RCRA grant programs have been phased out. Resource recovery grants, for example, were eliminated after 1981. Overall, total RCRA grants have fallen by about 30 percent from their 1979 peak of \$61 million (in 1983 dollars) to about \$43 million in 1985.

Toxic substances grants have been available to states since 1981, primarily in support of state monitoring and compliance activities. These grants have leveled off at about \$0.5 million a year (in 1983 dollars). One exception occurred in 1983, when the Congress eliminated toxic substances grants to states. In 1984, the Congress restored these grants to a real 1982 level, and no change in this level is expected for 1985.

Policy Issues

To a great extent, the drop in state grants--especially for the more established air and water quality programs--is to be expected and indeed, will probably continue, since the states are being encouraged to take over an increasing share of program responsibility, including funding. Although the rapid reductions that took place between 1980 and 1983 may have been harmful to some state programs--then in financial difficulty--many states are now running budgetary surpluses; to these states, current cuts in state grants appear less harmful. In addition, many states have now had the opportunity to establish permit fees and other revenue mechanisms. In some states, for example, the NPDES program is self-sustaining, supported entirely by permit fees and fines for noncompliance.

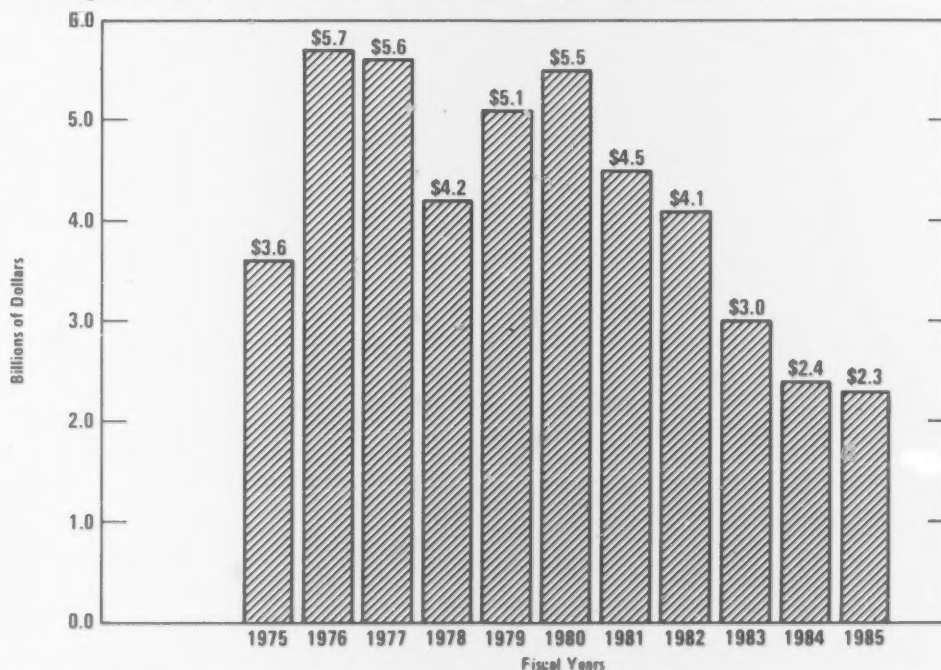
On the other hand, the Congress explicitly intended to support state programs financially, even when administration of those programs was fully delegated to the states. If a state's ability to ensure compliance with minimum national environmental standards becomes impaired because of federal cutbacks, this could contravene the original intent of the Congress and result in a weakened national program. For example, though state budgets appear in the aggregate to be stronger than in recent years, the trend is not uniform; some states, as noted in Chapter I, remain under fiscal stress. Second, states must balance needs for environmental protection against many other commitments in a climate of intense competition for available funds. Finally, while permit fees can support environmental programs in some states, elsewhere, fees are not dedicated to the permit program. Instead, they are returned to the states' general fund. In such cases, an environmental program may not benefit directly from the revenues it produces.

APPENDIX B. FEDERAL GRANTS FOR CONSTRUCTING WASTEWATER TREATMENT PLANTS

In 1985, the EPA will spend about \$2.3 billion (in 1983 dollars) in grants to municipalities (passed through the states) to help pay for the capital costs of wastewater treatment plants and conveyance systems (see Figure B-1). Compared to the 1984 level of construction grants, this represents a real decrease of 5 percent. These grants, authorized in Section 201 of the Clean Water Act, averaged about \$4.2 billion a year (in 1983 dollars) between 1975 and 1985. Expected outlays in 1985, therefore, are well below this 11-year average and about 60 percent lower than the historic peak of about \$5.7 billion in 1976.

Figure B-1.

EPA Funding for Grants to States for Construction of
Sewage Treatment Plants, 1975-1985 (In billions of dollars)



SOURCE: Congressional Budget Office.

NOTE: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

HISTORICAL BACKGROUND

The federal government first made grants to localities for the construction of sewage treatment plants as a result of the Water Pollution Control Act of 1956. The act authorized \$50 million a year (in nominal dollars) in 30 percent matching grants. The amendments to the Water Pollution Control Act passed in 1961 increased this funding to \$100 million a year. The 1972 amendments increased the federal share as well as the level of federal spending.

The 1972 amendments to the Federal Water Pollution Control Act created the basis of the EPA's current construction grants program. Originally, the program was formulated to provide 75 percent of a municipality's capital costs for building wastewater treatment plants. These facilities were considered crucial to the Clean Water Act's goal of improving water quality and protecting public health. Since that time, the program has undergone two basic changes. Amendments passed in 1977 provided for delegation of program management to the states and encouraged innovative or alternative technologies by offering an 85 percent federal grant only for such technologies. Once states accepted program delegation--that is, after 1977--they were eligible to set aside up to 4 percent of their construction grant allotments for program management under Section 205(g) of the act.

Amendments in 1981 reflected mounting budgetary pressures and reoriented the construction grants program in an attempt to make federal spending more efficient. First, the level of federal spending was reduced from the \$4 billion to \$6 billion range of past years to \$2.4 billion a year for 1982 through 1985 (all in 1983 dollars). Second, beginning in 1985, the federal share of new construction projects would be reduced from 75 percent to 55 percent for conventional technologies and from 85 percent to 75 percent for innovative technologies. Proponents of such reductions claimed that more efficient local investment decisions would result if more local money was at stake. Third, beginning in 1985, federal grants would be limited solely to the needs of current populations in an effort to curtail spending for the sole purpose of promoting growth.^{1/} Finally, states were forced to set aside either 1 percent or \$100,000 of their construction grant allotments, whichever was greater, for water quality planning under Section 205(j). According to the EPA, this would help offset reduced state water quality planning grants under Section 106.

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1. Federal funds were actually limited further. For a full discussion of the 1981 amendments, see Morris A. Ward, The Clean Water Act: The Second Decade, E. Bruce Harrison Company (1982).

Between 1972 and 1985, EPA construction grants are expected to total about \$52 billion (in 1983 dollars). By the end of 1983, about 3,550 wastewater treatment plants had been built with federal assistance. Some 8,000 plants are now under construction. In 1984, 49 states and one territory, Puerto Rico, had delegated authority to manage the construction grants program. The outstanding state is expected to receive delegation in 1985.

THE 1985 PROGRAM

In 1985, the EPA expects to make some 650 grant awards, incurring obligations of \$2.2 billion and outlays of \$2.3 billion (both in 1983 dollars). About 1,060 construction projects are expected to be completed and put into service. In keeping with full Section 205(g) delegation policy, states are expected to obligate about \$93 million (in nominal dollars) for state construction grants management, providing about 68 percent of total program management. States are also expected to obligate about \$25 million (in nominal dollars) for water quality management under Section 205(j).

POLICY ISSUES

According to the EPA's 1982 Needs Survey, municipal wastewater treatment needs through the year 2000 would total some \$124 billion--about \$6.5 billion a year (in 1983 dollars). Under current law, the federal share after 1984 will be 55 percent. Thus, to meet all needs, the EPA would have to spend about \$3.6 billion a year through 2000 (in 1983 dollars). This would represent a 57 percent increase in outlays, compared to the \$2.3 billion (in 1983 dollars) the EPA anticipates spending in 1985.^{2/} In the aggregate, states and localities, now spending about \$0.8 billion to match EPA grants, would have to spend some \$2.9 billion a year (more than a three-fold increase) to meet these needs.

The states and the federal government could simply spend more to meet this implied shortfall. Alternatively, meeting wastewater treatment needs could be stretched over a longer period. But the many strategies to improve the efficiency of current spending warrant a closer look at the construction grants program, a process already under way in the Congress

2. For additional details, see Congressional Budget Office, Public Works Infrastructure: Policy Considerations for the 1980s (April 1983).

and within the EPA. ^{3/} The most popular strategies are of two types: those that would reduce outlays for sewage treatment plants without degrading ambient water quality, and those that would help local governments raise capital.

Reducing Federal and Local Spending. In certain instances, economies can be achieved by relaxing the federal regulations that prescribe minimum national levels of wastewater treatment. Where wastewater empties into coastal water, for example, discharges might be allowed after only limited treatment. The General Accounting Office has estimated that up to \$10 billion could be saved by granting such "secondary treatment" waivers to 800 coastal communities. ^{4/} The EPA has already begun to expand its program of examining coastal discharge waivers under Section 301(h) of the Clean Water Act. Some waivers could cause environmental degradation, however, and the agency is required to weigh costs and benefits on a case-by-case basis.

Together, EPA and the states have identified about \$6 billion in needs for advanced wastewater treatment (AWT) where removal of pollutants beyond secondary treatment would help achieve water quality standards in receiving waters. But the cost per unit of pollutant removed increases dramatically from secondary treatment to AWT. An EPA program initiated in 1980 to review AWT needs has already saved \$300 million by reconsidering site-specific water quality and potential improvement of advanced treatment. ^{5/} In cases of multiple discharges to a river reach, improved enforcement of existing industrial and municipal effluent limits could obviate the need for advanced treatment.

3. Increasing the nonfederal share to 55 percent of wastewater treatment plants may result in cleaner water at less national cost. Initial results of a forthcoming CBO study indicate that investment efficiency increases substantially as the nonfederal share of treatment plant costs increases. The reasons for this include more careful choice of treatment technology, better local project management, and more rigorous cost oversight. The EPA is also studying these issues, with a focus on state and local financing options.

4. See General Accounting Office, Billions Could Be Saved Through Waivers for Coastal Wastewater Treatment Plants (May 22, 1981).

5. See Environmental Protection Agency, 1982 Needs Survey, Office of Water Programs Operations (December 1982).

Costly AWT may not result in cleaner waterways where external agricultural or urban runoff has already degraded ambient water quality. Instead, non-point source controls to limit soil erosion or reduce fertilizer application could result in cleaner water at less cost. Intense farming or natural erosion upstream from a wastewater discharge may so degrade water quality that secondary or advanced treatment of municipal wastewater could result in little or no measurable water quality improvement. In several midwestern cities, for example, millions of dollars have been spent to reduce municipal discharges, but little improvement in river water quality has followed. At least one recent study, based in part on the EPA's non-point source control demonstration projects, claims that large quantities of runoff can be controlled fairly easily at relatively low cost. ^{6/}

Financing Alternatives

Two alternatives to 55 percent or 75 percent federal project grants might also result in more efficient spending. First, federal block grants to states for water pollution control might reduce administrative costs and allow the states more leverage and discretion in disbursing their allotted funds. Although block grants might transfer some administrative costs to the states, if this had been in effect during 1981, perhaps \$10 million in federal administrative costs could have been reallocated to direct federal aid. Block grants would also allow states to redistribute federal funds as loans to municipalities, allowing greater numbers of treatment plants to be built. ^{7/} One result of increasing wastewater funding leverage, however, would be higher local user fees.

Second, private-sector resources in the form of "creative financing" may be available to help states and localities meet their wastewater treatment needs without higher federal outlays. Private financing, ownership, and/or operation of wastewater facilities can relieve local jurisdictions of the burden of capital formation while offering investors a reasonable rate of return. Such an arrangement can also reduce direct federal outlays.

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6. See John A. Jaksch and Henry M. Peskin, "Nonpoint Source Water Pollution," Resources (Winter 1984).
 7. The state of New Jersey first proposed such an arrangement in 1982. In its New Jersey Infrastructure Bank proposal, the state argued that by repackaging federal grants as loans, some 200 treatment plants could be upgraded (compared to only 11 if funds were disbursed as grants). This leverage would result in a 30 percent increase in local sewage fees.

These arrangements, however, involve other types of federal subsidies to the private sector--investment tax credits, rapid depreciation of capital stock, and low interest rates on municipal bond issues. Some analysts claim that direct subsidies to municipalities might be more efficient than these indirect subsidies to private industry. 8/

8. See for example, Congressional Budget Office, Reducing the Deficit: Spending and Revenue Options (February 1983), pp. 283 and 310.

APPENDIX C. DETAILED BUDGETARY DATA

Numerical totals for the figures in this paper are displayed on the following pages for readers seeking more detailed budgetary data (see Tables C-1 through C-5). As elsewhere in this paper, all figures except those for 1984 and 1985 represent actual obligations and are expressed in 1983 constant dollars unless noted otherwise.

TABLE C-1. ALLOCATION OF EPA RESOURCES AMONG FOUR EPA
OPERATING PROGRAMS, 1975-1985
(In millions of 1983 dollars and percents)

Year	Air		Water		Solid and Hazardous Waste		Toxic Substances	
	Millions of Dollars	Per- cent	Millions of Dollars	Per- cent	Millions of Dollars	Per- cent	Millions of Dollars	Per- cent
1975	266.3	44.2	292.7	48.6	35.3	5.9	8.5	1.4
1976	183.8	31.8	358.9	62.2	25.6	4.4	9.1	1.6
1977	260.0	41.1	329.6	52.1	29.3	4.6	13.7	2.2
1978	251.6	31.8	454.3	57.5	52.6	6.7	31.9	4.0
1979	328.5	32.2	522.7	51.3	84.4	8.3	83.1	8.2
1980	359.7	34.7	427.7	41.3	136.1	13.1	111.9	10.8
1981	268.3	29.8	362.8	40.3	161.2	17.9	107.2	11.9
1982	245.8	34.1	268.5	37.2	118.3	16.4	88.5	12.3
1983	215.9	35.1	210.2	34.2	118.6	19.3	69.9	11.4
1984	214.2	35.2	205.9	33.8	122.6	20.2	65.6	10.8
1985	208.2	34.2	198.1	32.5	130.3	21.4	72.5	11.9

SOURCE: Congressional Budget Office.

NOTES: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

TABLE C-2. MAJOR ACTIVITY FUNDING LEVELS
FOR FOUR EPA PROGRAMS, 1975-1985
(In millions of 1983 dollars)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Research and Development	186	124	161	196	193	223	191	193	152	137	140
Abatement and Control	356	403	414	529	744	727	621	456	411	414	406
Enforcement	<u>62</u>	<u>51</u>	<u>58</u>	<u>66</u>	<u>82</u>	<u>85</u>	<u>87</u>	<u>73</u>	<u>52</u>	<u>58</u>	<u>63</u>
Total	603	577	633	790	1019	1035	900	721	615	608	609

SOURCE: Congressional Budget Office.

NOTES: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority. Details may not add to totals because of rounding.

TABLE C-3. FUNDING FOR FOUR MAJOR PROGRAMS, 1975-1985
(In millions of 1983 dollars)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
AIR QUALITY PROGRAM											
R&D	99	59	81	65	70	85	67	68	60	59	59
Abatement and Control	149	106	155	156	220	236	167	149	136	135	130
Enforcement	19	19	24	31	38	39	34	30	21	20	19

WATER QUALITY PROGRAM											
R&D	72	58	71	106	89	84	57	57	32	24	24
Abatement and Control	178	268	226	315	397	310	271	180	153	155	144
Enforcement	43	32	33	33	37	35	35	31	26	27	30

SOLID AND HAZARDOUS WASTE PROGRAM											
R&D	13	5	7	11	11	16	32	31	33	31	31
Abatement and Control	22	21	23	41	71	112	116	80	82	86	91
Enforcement	0	0	0	1	2	8	13	7	3	6	8

TOXIC SUBSTANCES PROGRAM											
R&D	2	1	2	13	23	38	35	37	27	23	25
Abatement and Control	7	8	11	17	56	69	67	47	40	38	41
Enforcement	0	0	0	2	4	4	6	5	3	5	7

SOURCE: Congressional Budget Office.

NOTES: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

TABLE C-4. REVENUE SOURCES AND USES FOR THE SUPERFUND,
1981-1985

	1981	1982	1983	1984	1985
SUPERFUND REVENUE SOURCES (In millions of nominal dollars)					
General Fund Appropriations to Superfund	9	27	49	44	44
Taxes on Petrochemical Feedstocks	128	244	230	264	276
Interest Earned on Fund	9	68	61	40	31
Fines and Cost Recoveries	0	2	0	6	46
311(k) Transfer	<u>7</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
Total	153	341	332	354	397

USES OF THE SUPERFUND (In millions of 1983 dollars)					
Research and Development	5	15	7	8	12
Enforcement	3	9	18	30	45
Management	3	10	11	20	22
Response	35	159	190	381	504

SOURCE: Congressional Budget Office, based on Budget of the United States Government (1983-1985).

NOTES: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

TABLE C-5. EPA FUNDING FOR GRANTS TO STATES FOR
CONSTRUCTION OF SEWAGE TREATMENT PLANTS,
1975-1985 (In billions of 1983 dollars)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Outlays	3.6	5.7	5.6	4.2	5.1	5.5	4.5	4.1	3.0	2.4	2.3

SOURCE: Congressional Budget Office.

NOTES: Data through 1983 reflect actual obligations; 1984 and 1985 data reflect budget authority.

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